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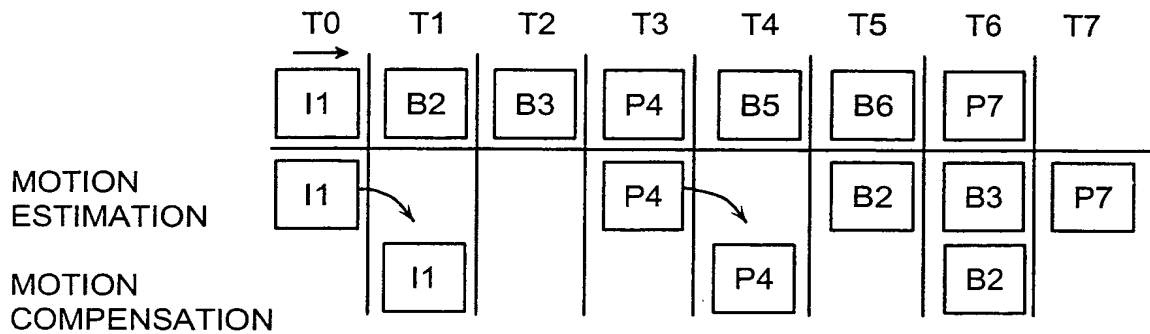


FIG. 1
PRIOR ART

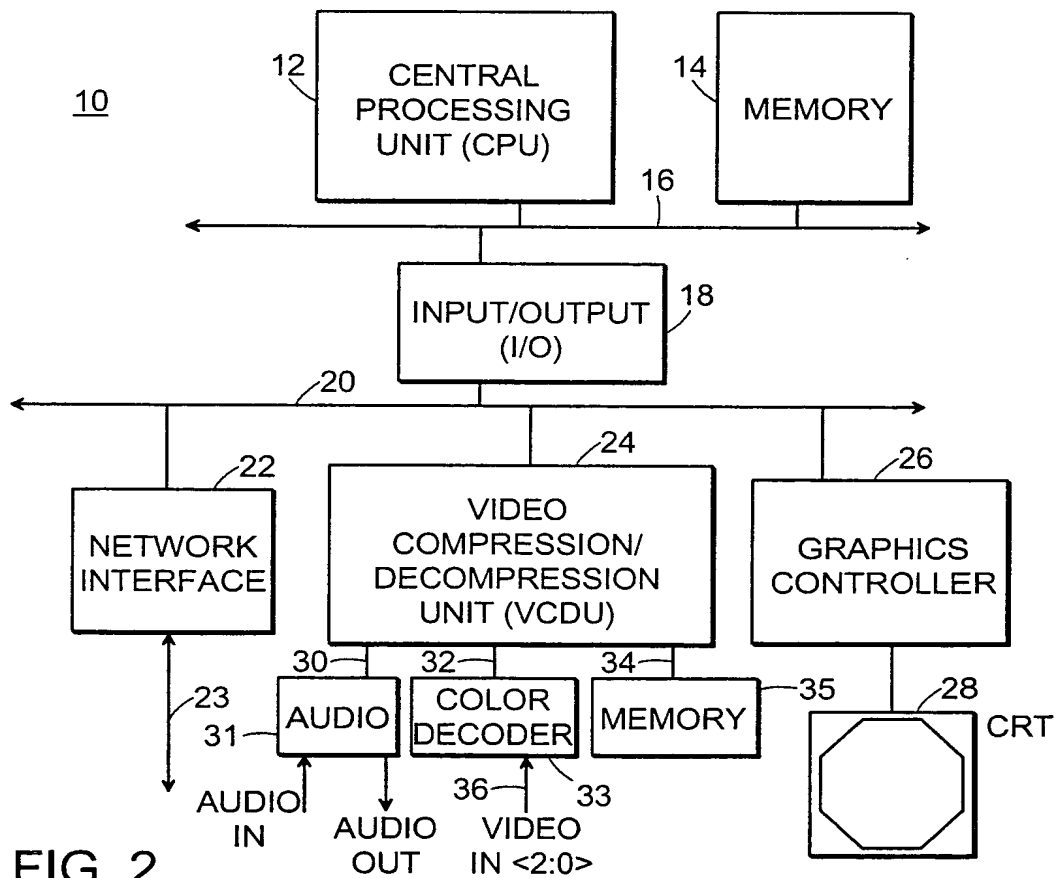


FIG. 2

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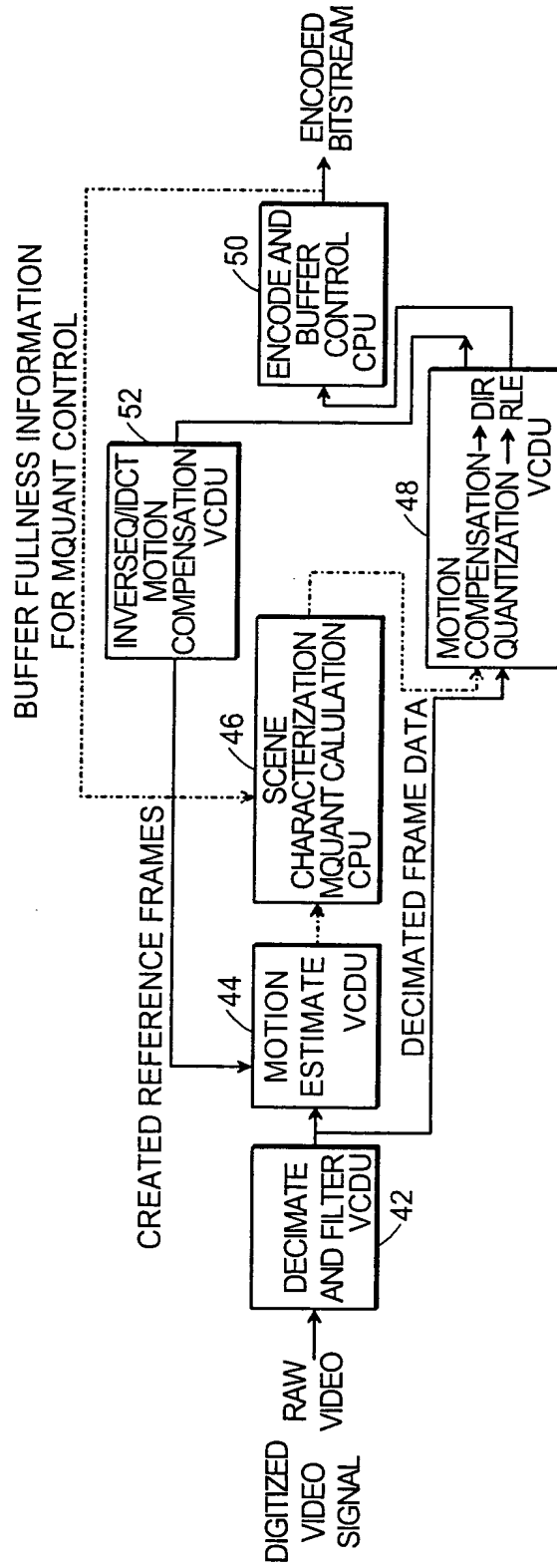
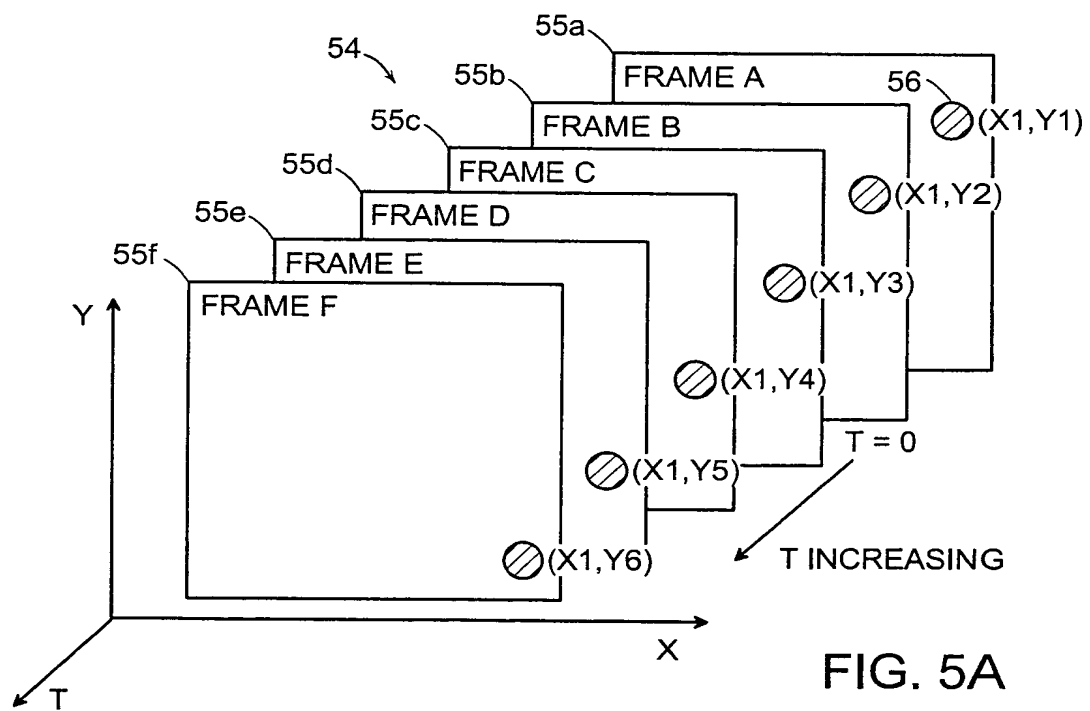
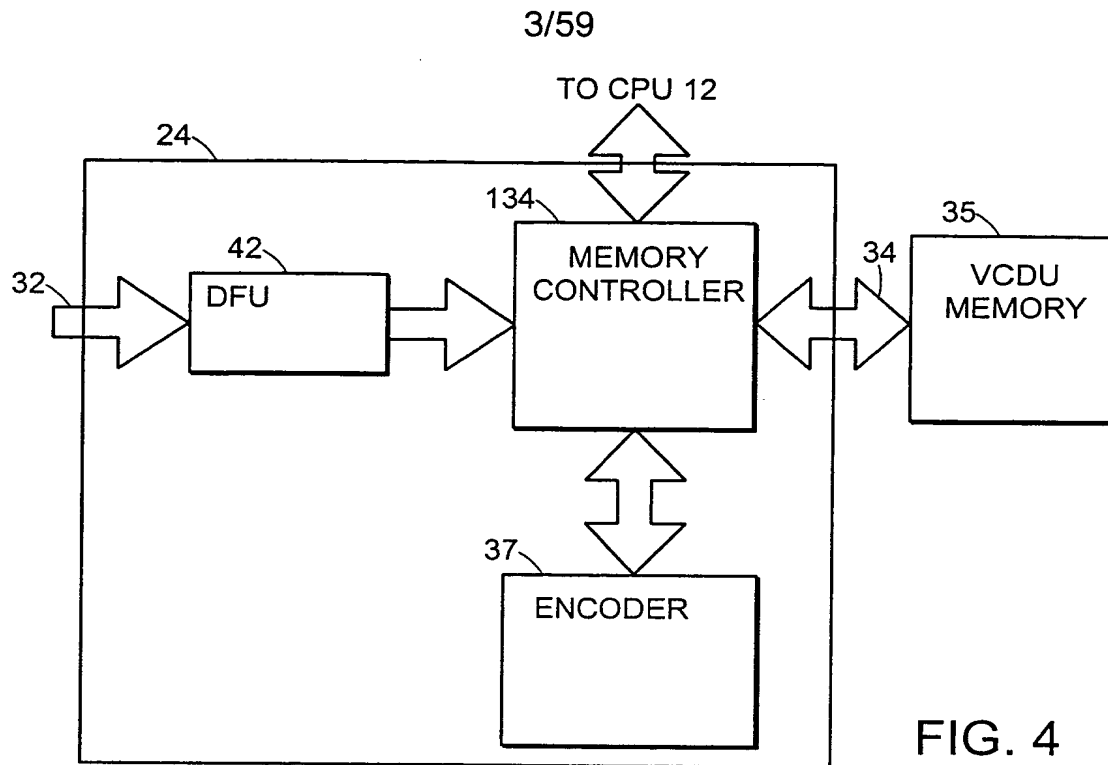


FIG. 3

— HIGH BANDWIDTH DATA (1 TO 4 MBYTES/SEC)
 --- LOW BANDWIDTH DATA (<.5 MBYTES/SEC)



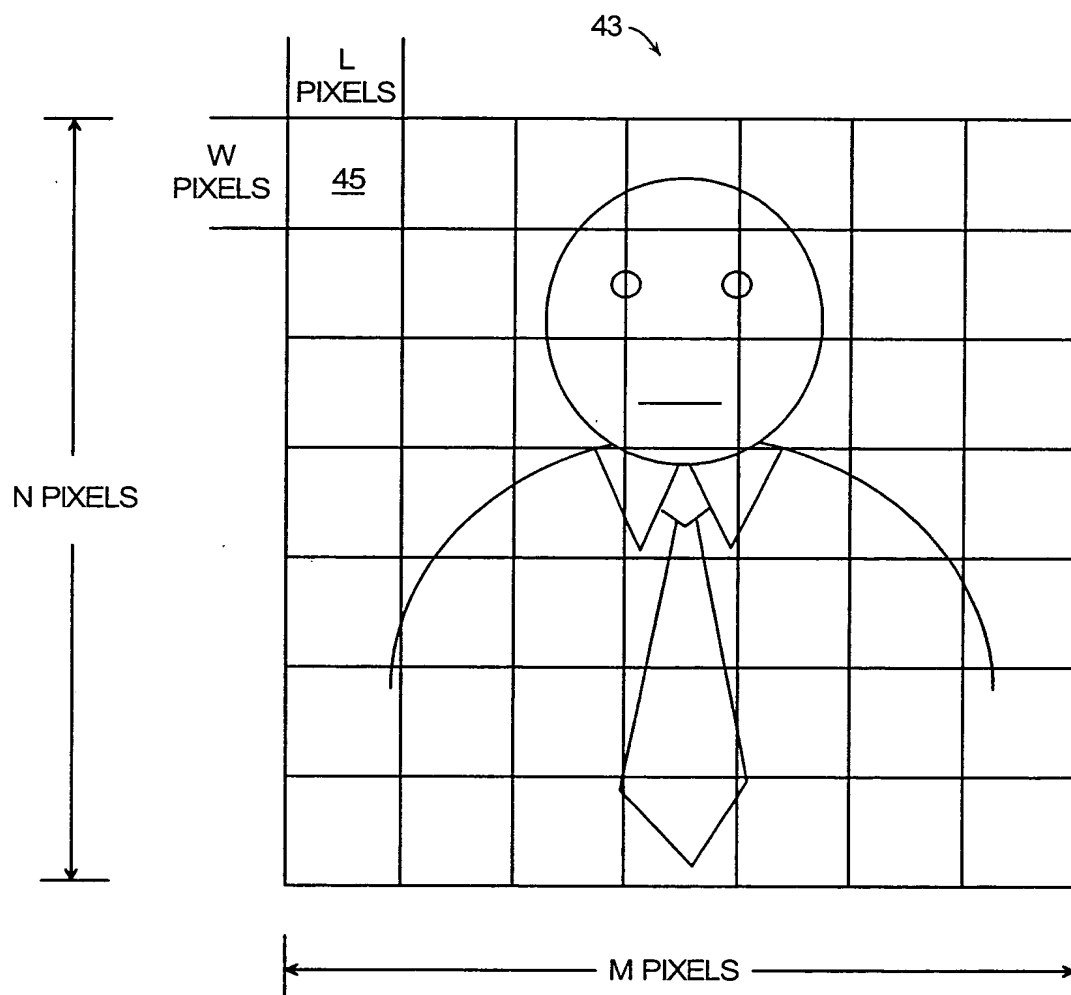


FIG. 5B

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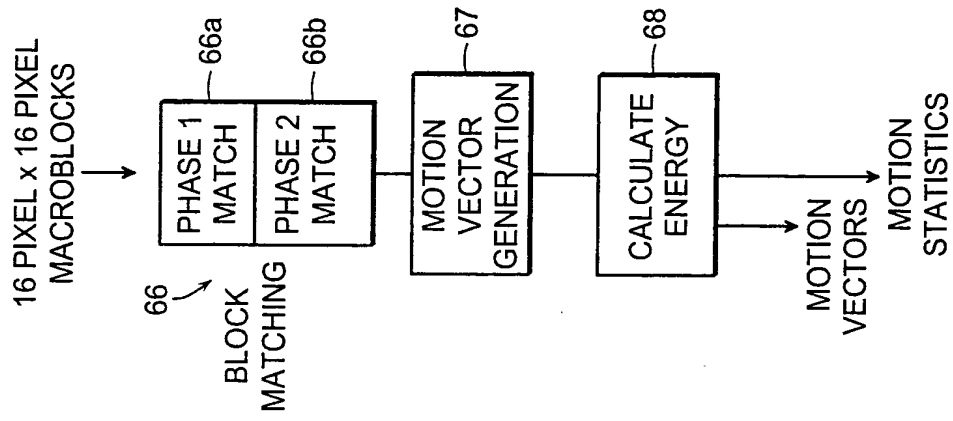


FIG. 6B

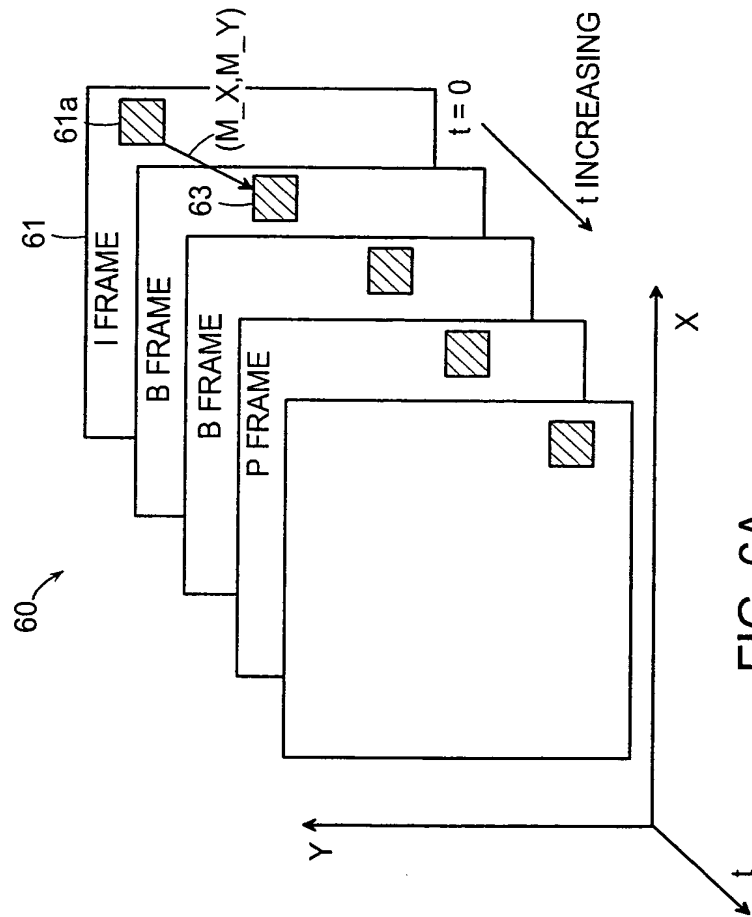


FIG. 6A

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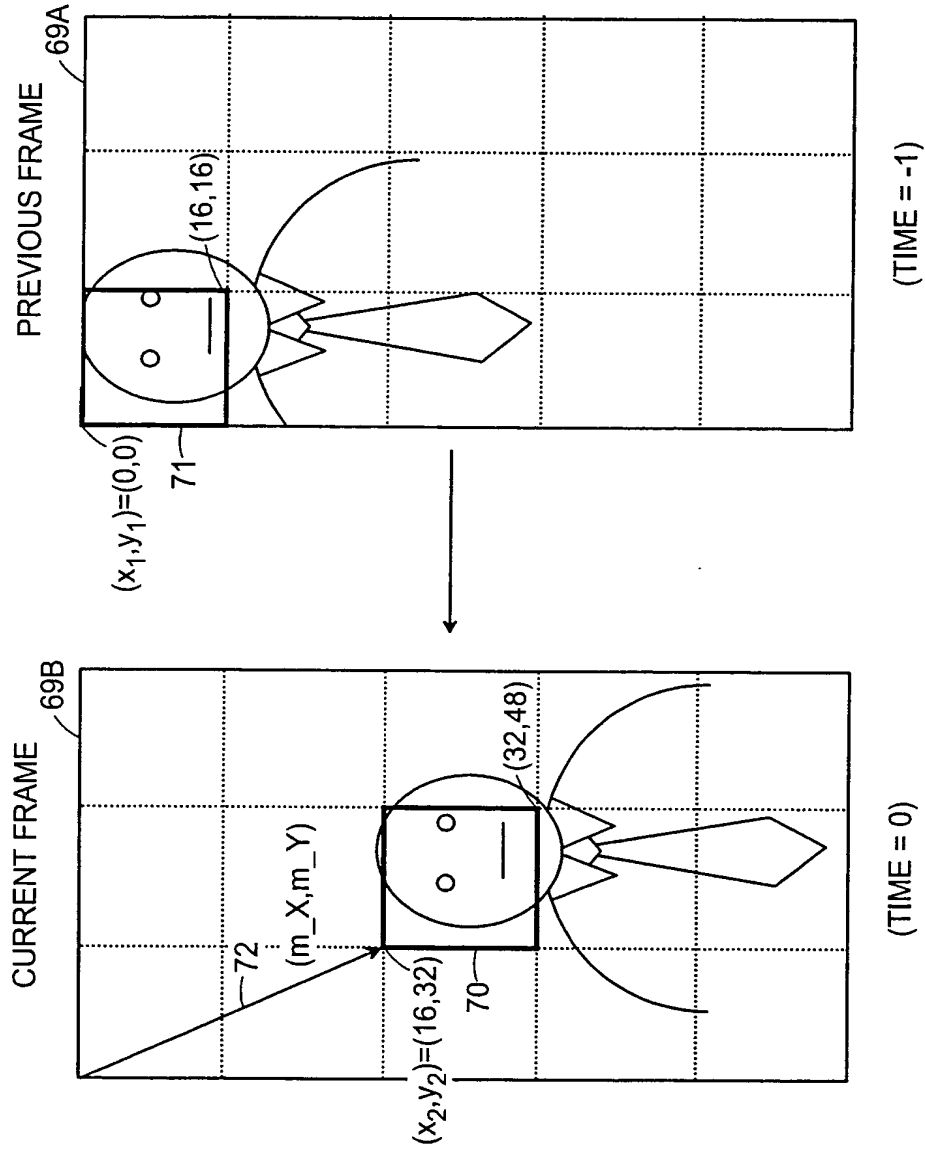


FIG. 6C

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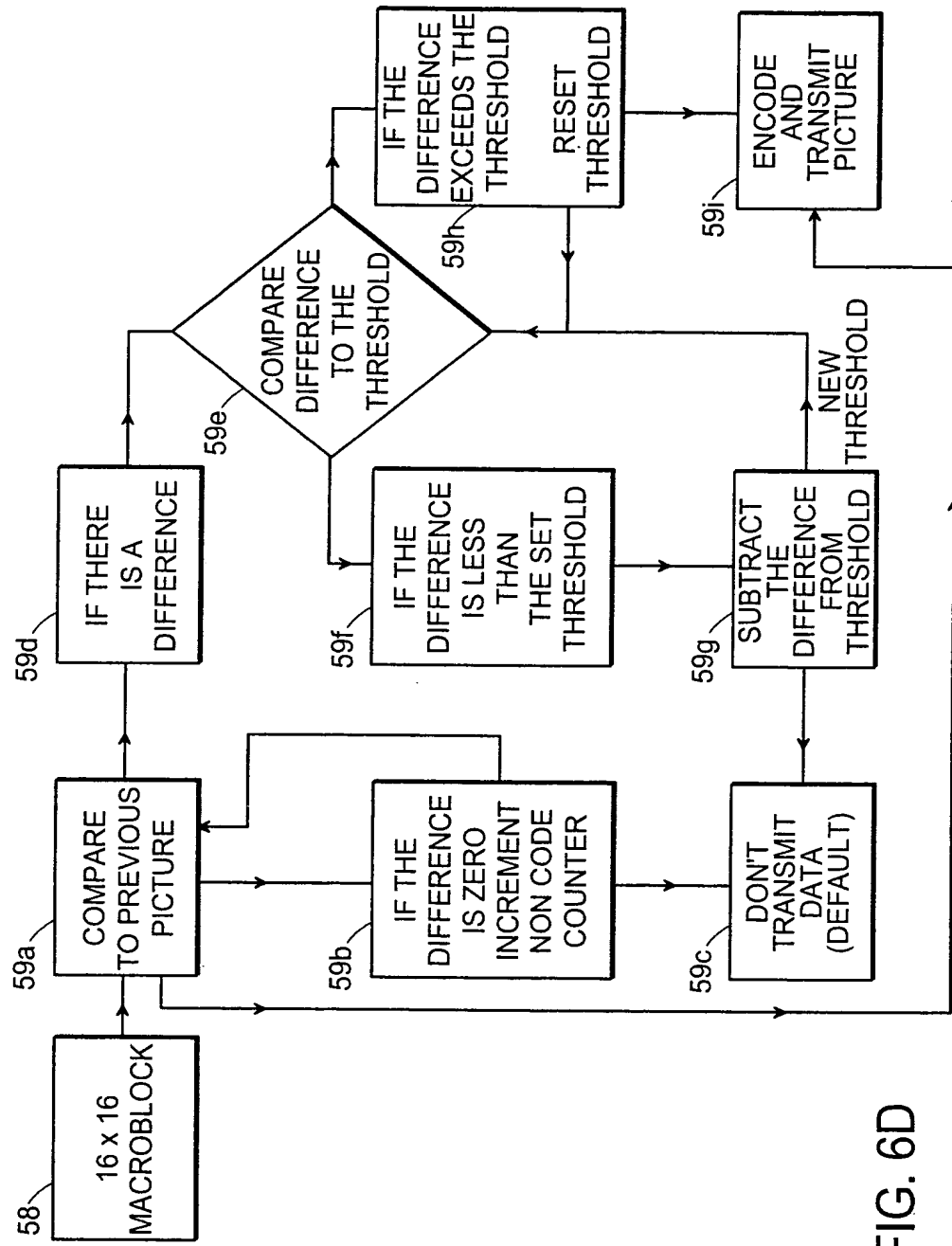


FIG. 6D

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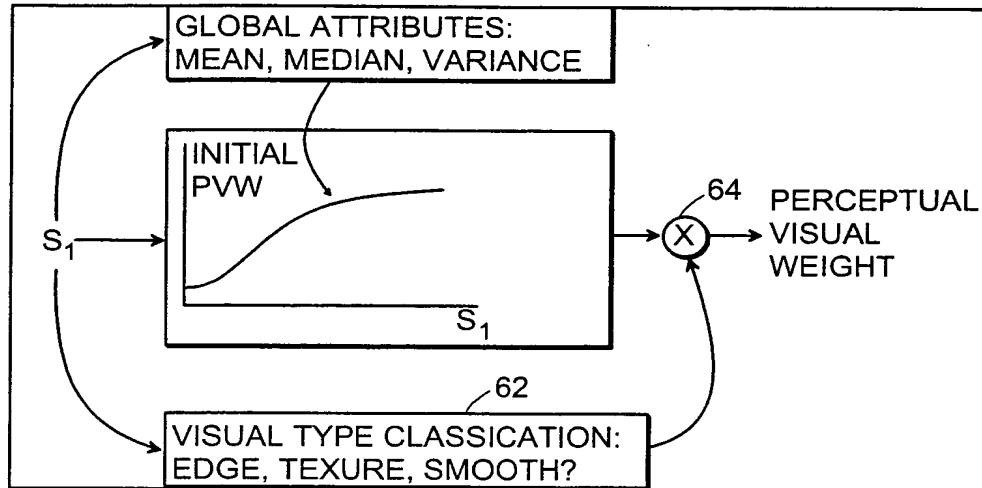


FIG. 7

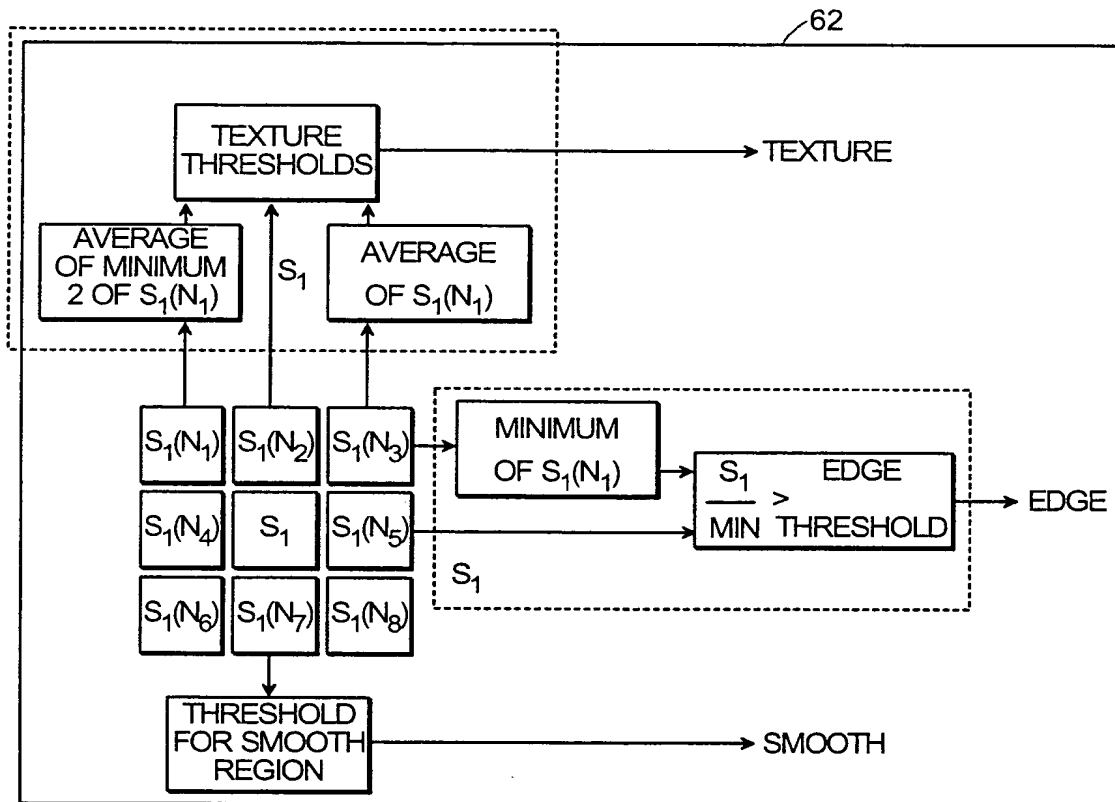


FIG. 8

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PROCESS FOR INITIAL PVW DETERMINATION FOR I-CODED FRAMES

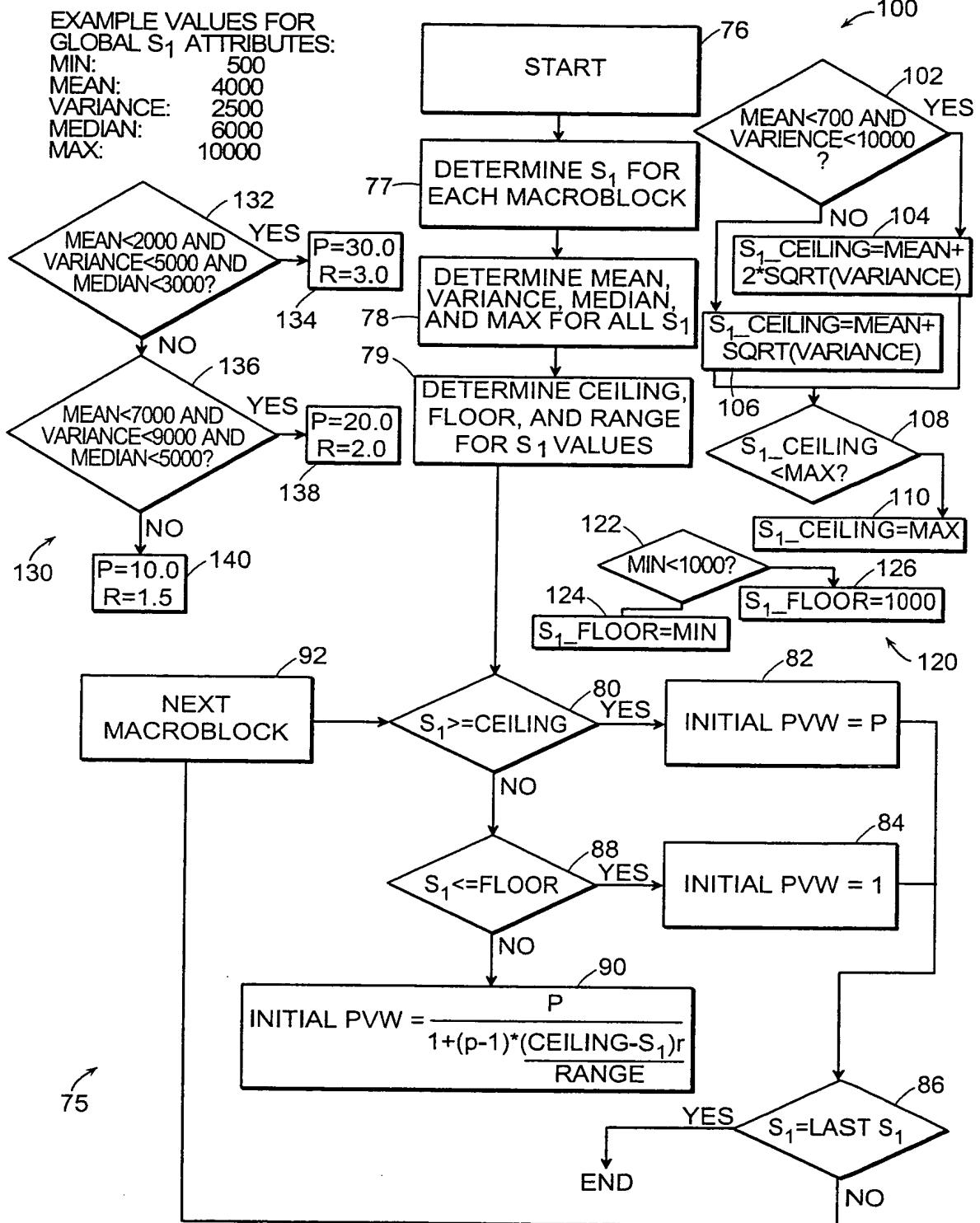


FIG. 9

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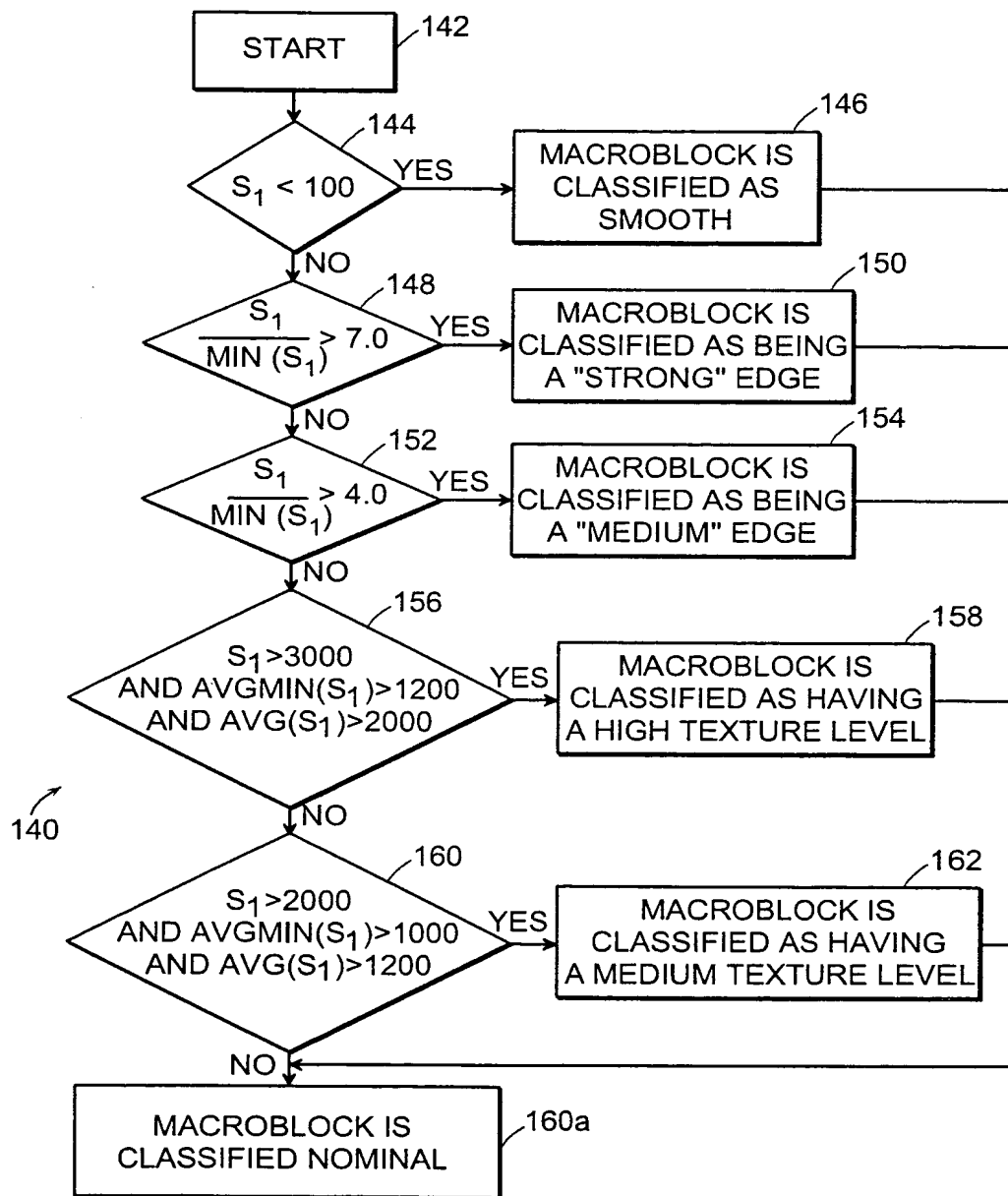
PROCESS FOR CLASSIFYING
INTRACODED FRAMES OR
PICTURES

FIG. 10

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PROCESS FOR PROVIDING FINAL PVW VALUE FOR I FRAMES

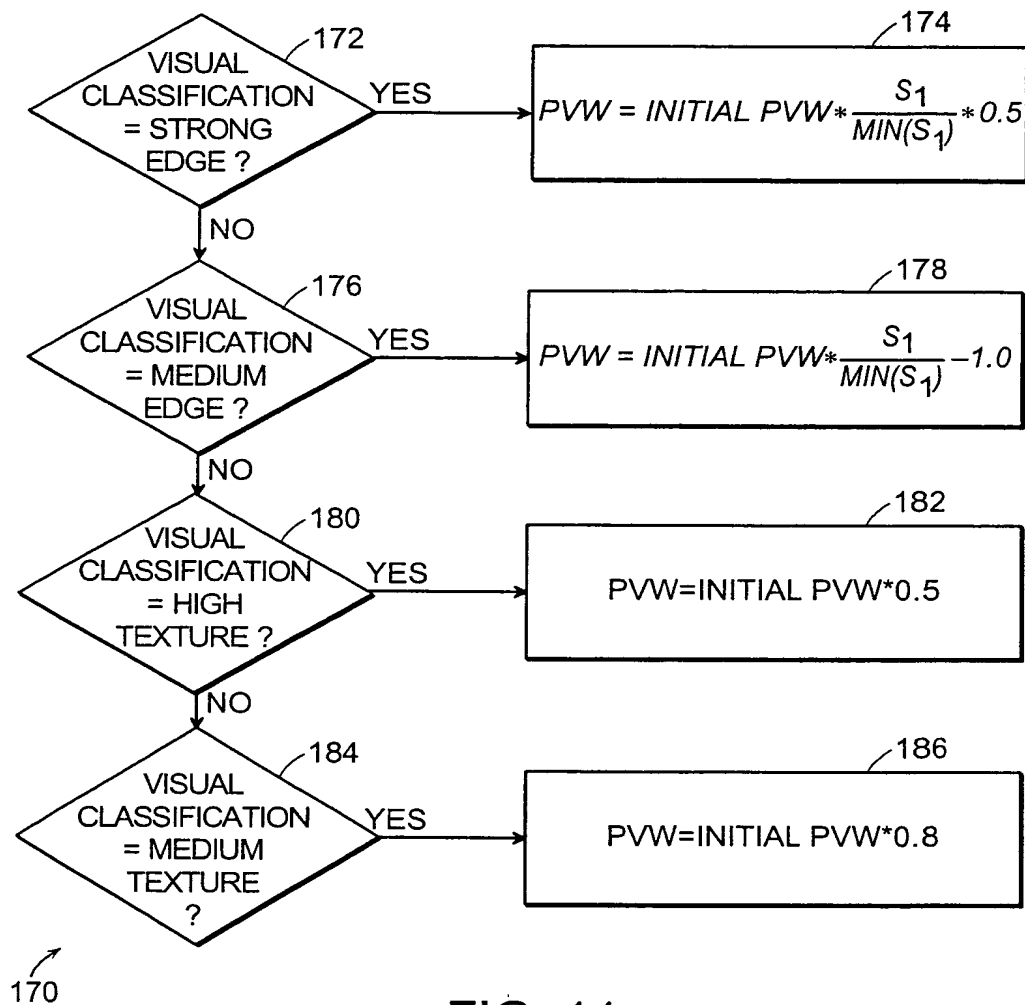


FIG. 11

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PROCESS FOR INITIAL PVW DETERMINATION FOR P-CODED FRAMES

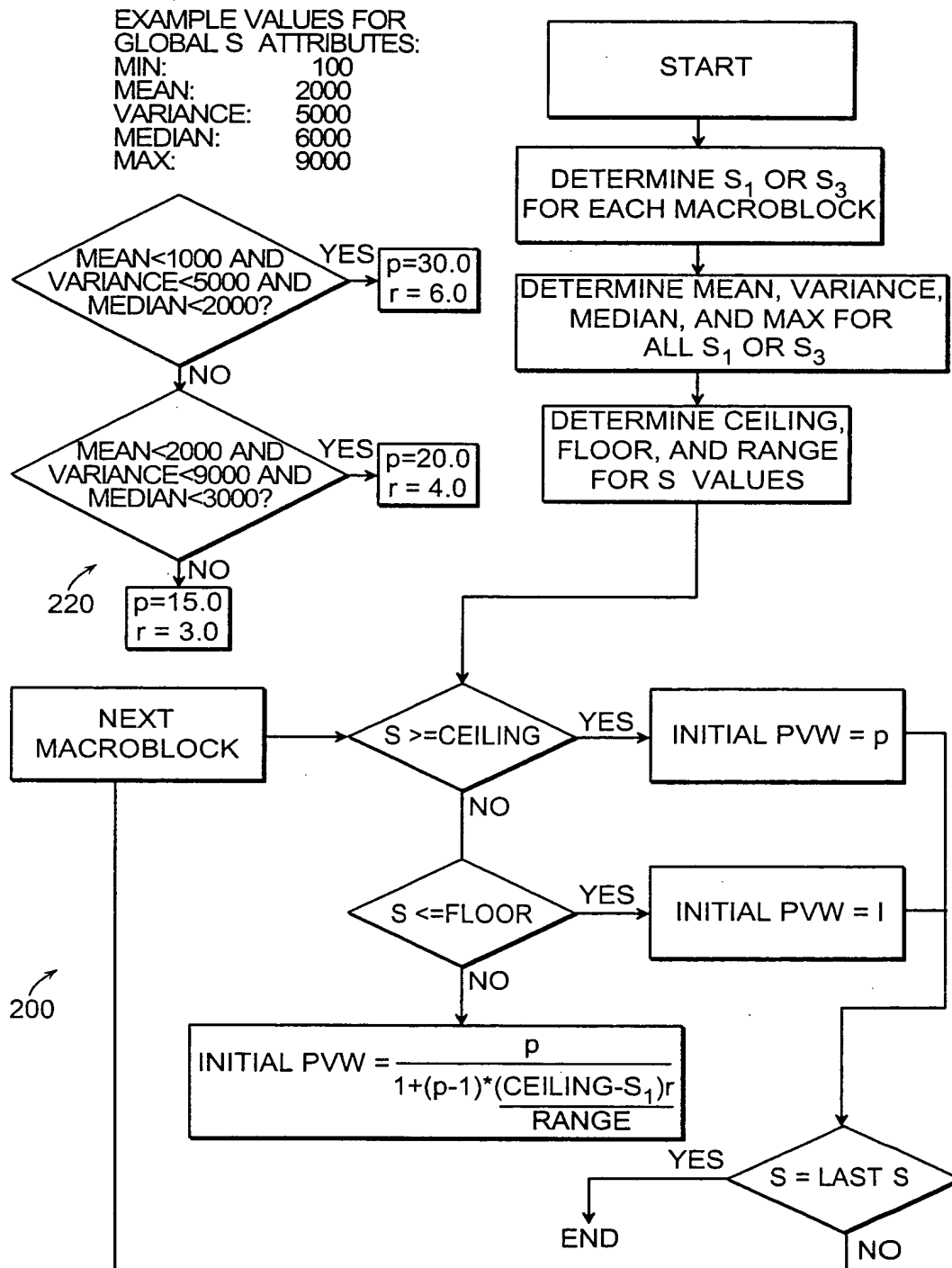


FIG. 12

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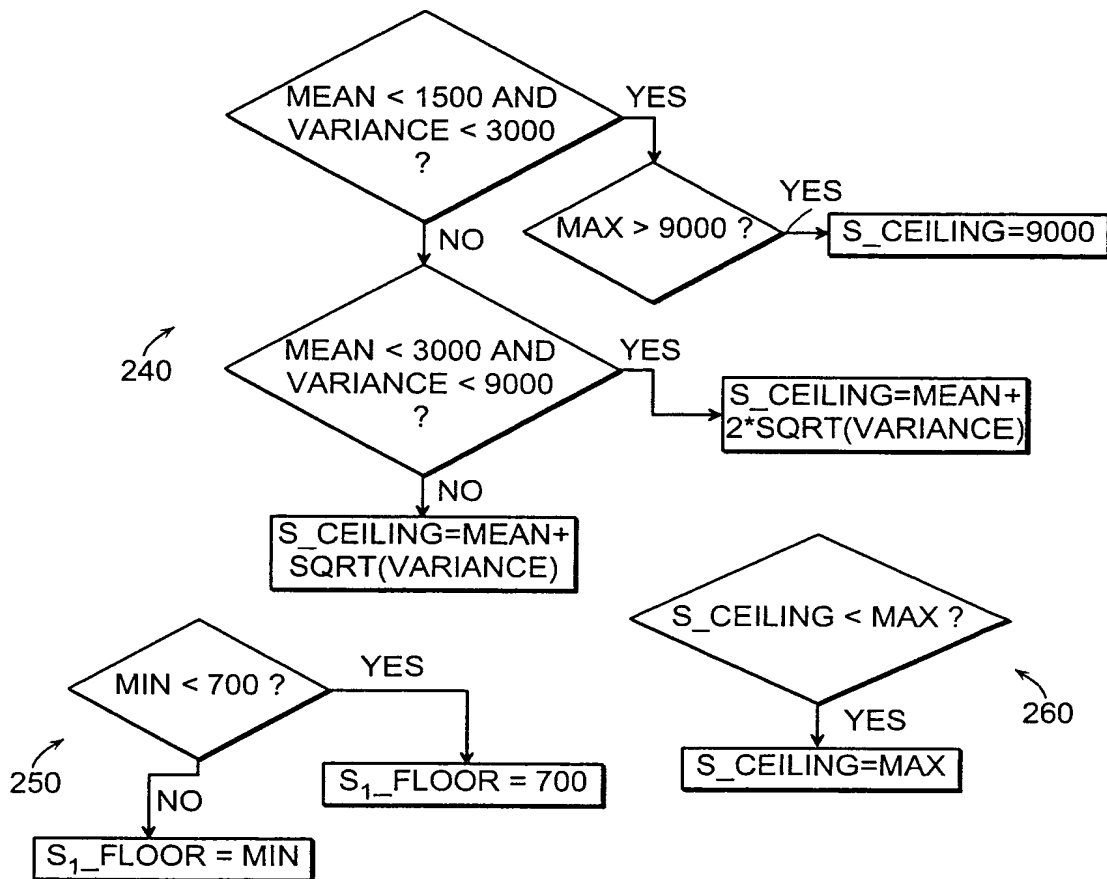


FIG. 13

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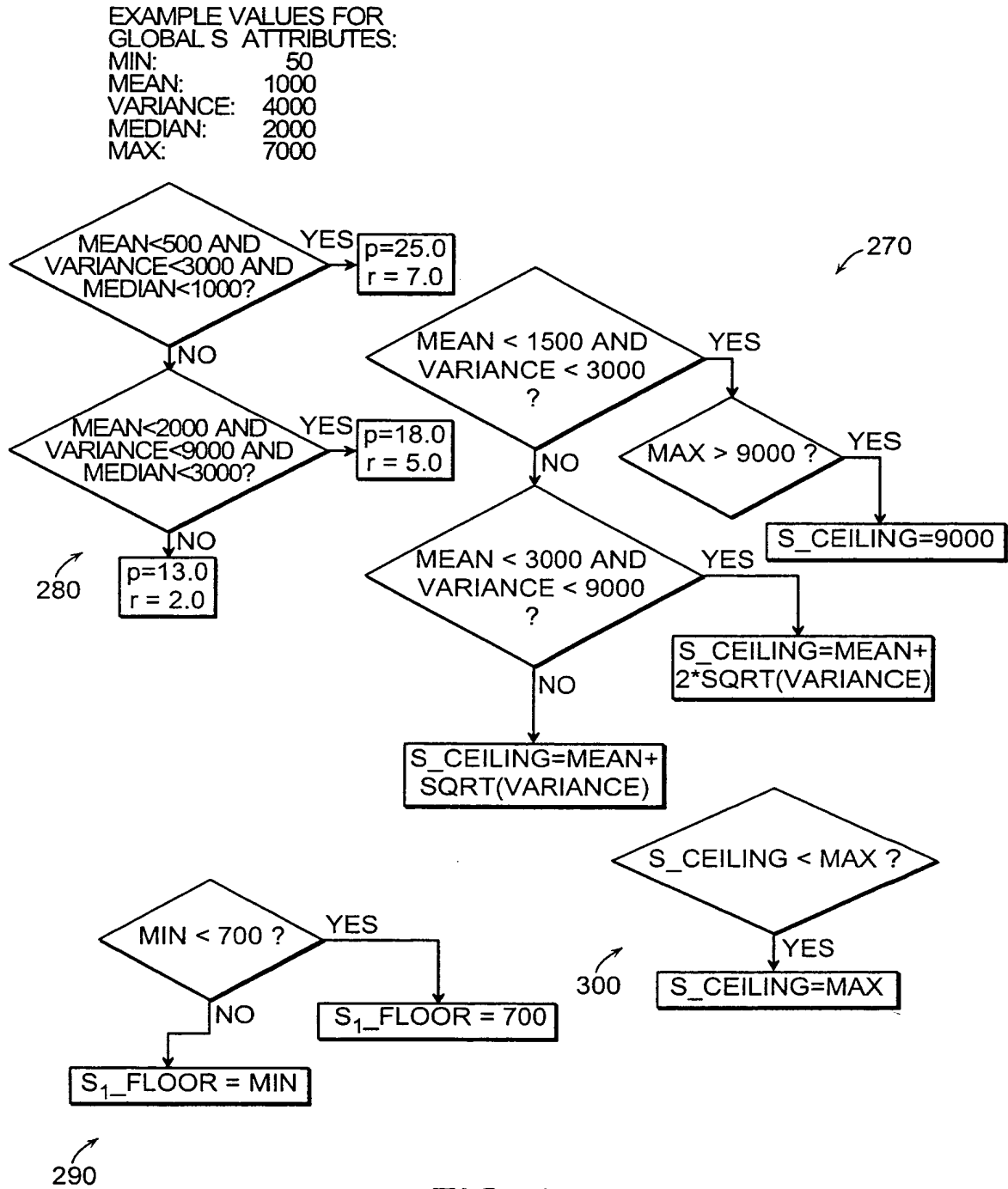


FIG. 14

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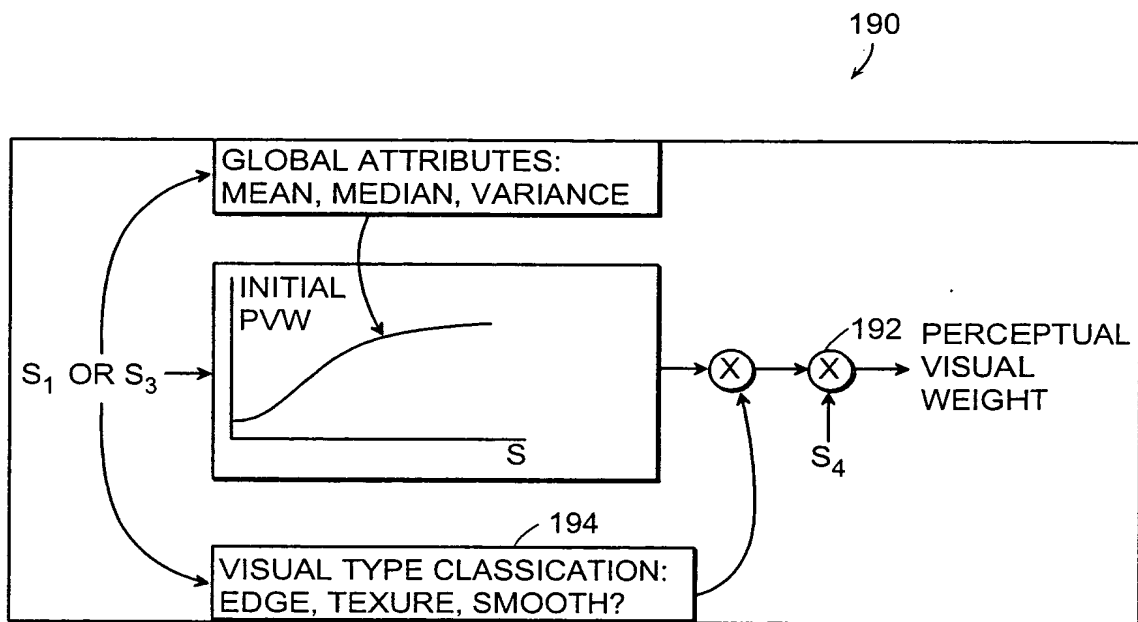


FIG. 15

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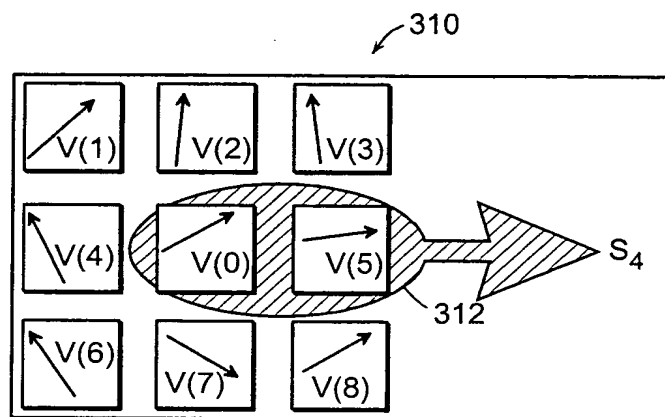


FIG. 16

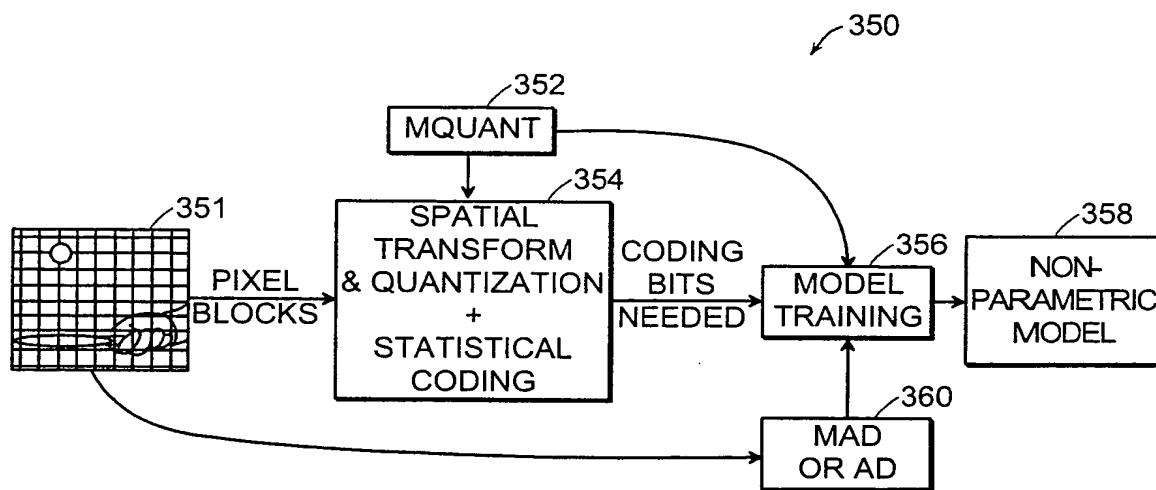


FIG. 17

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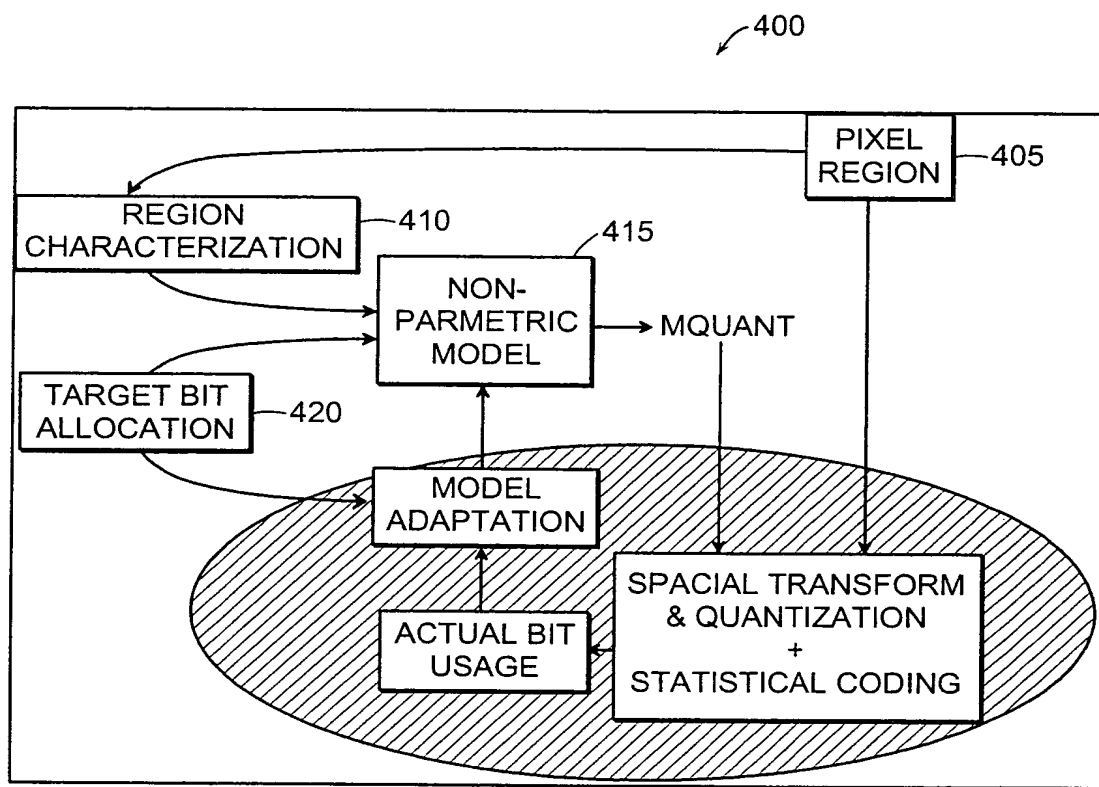


FIG. 18

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FIG. 19A

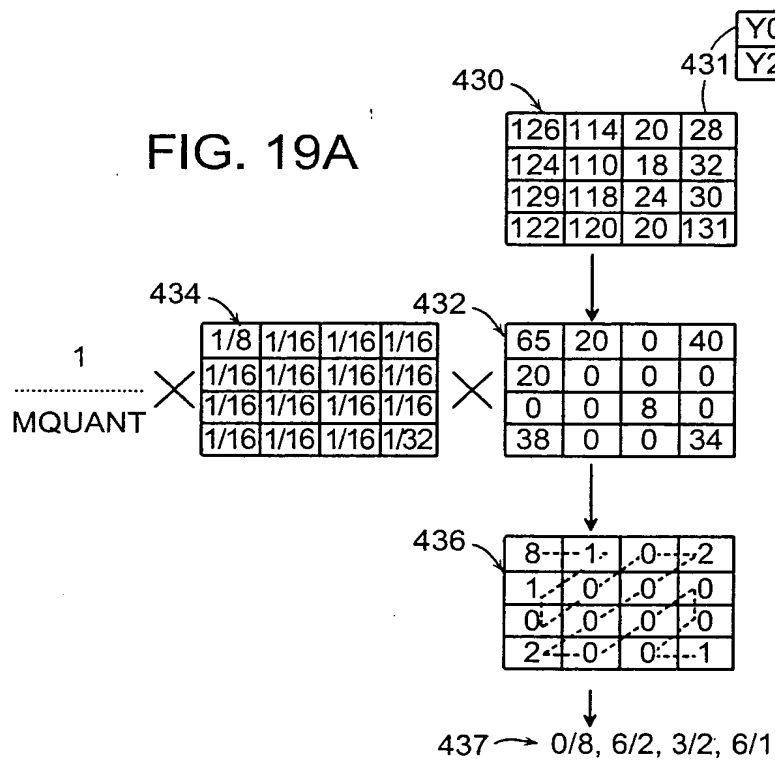


FIG. 19B

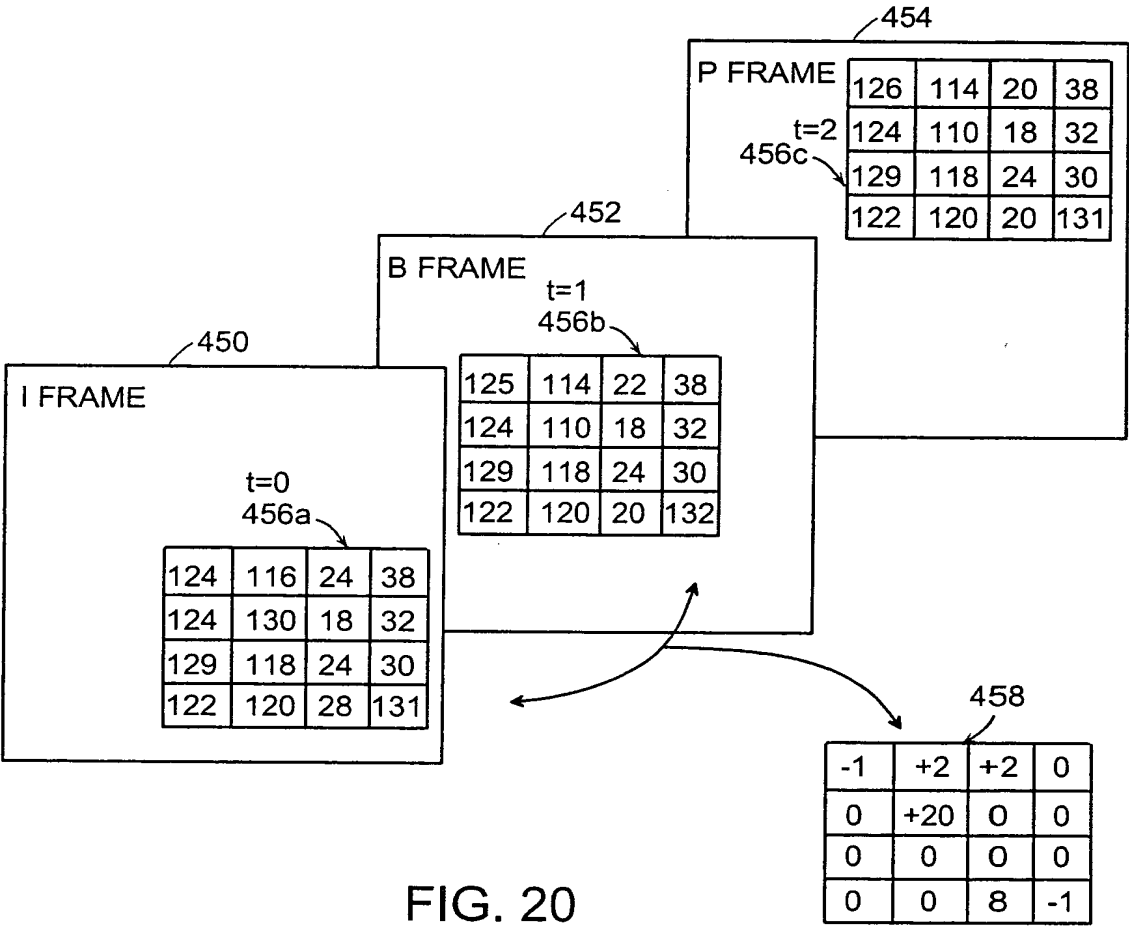
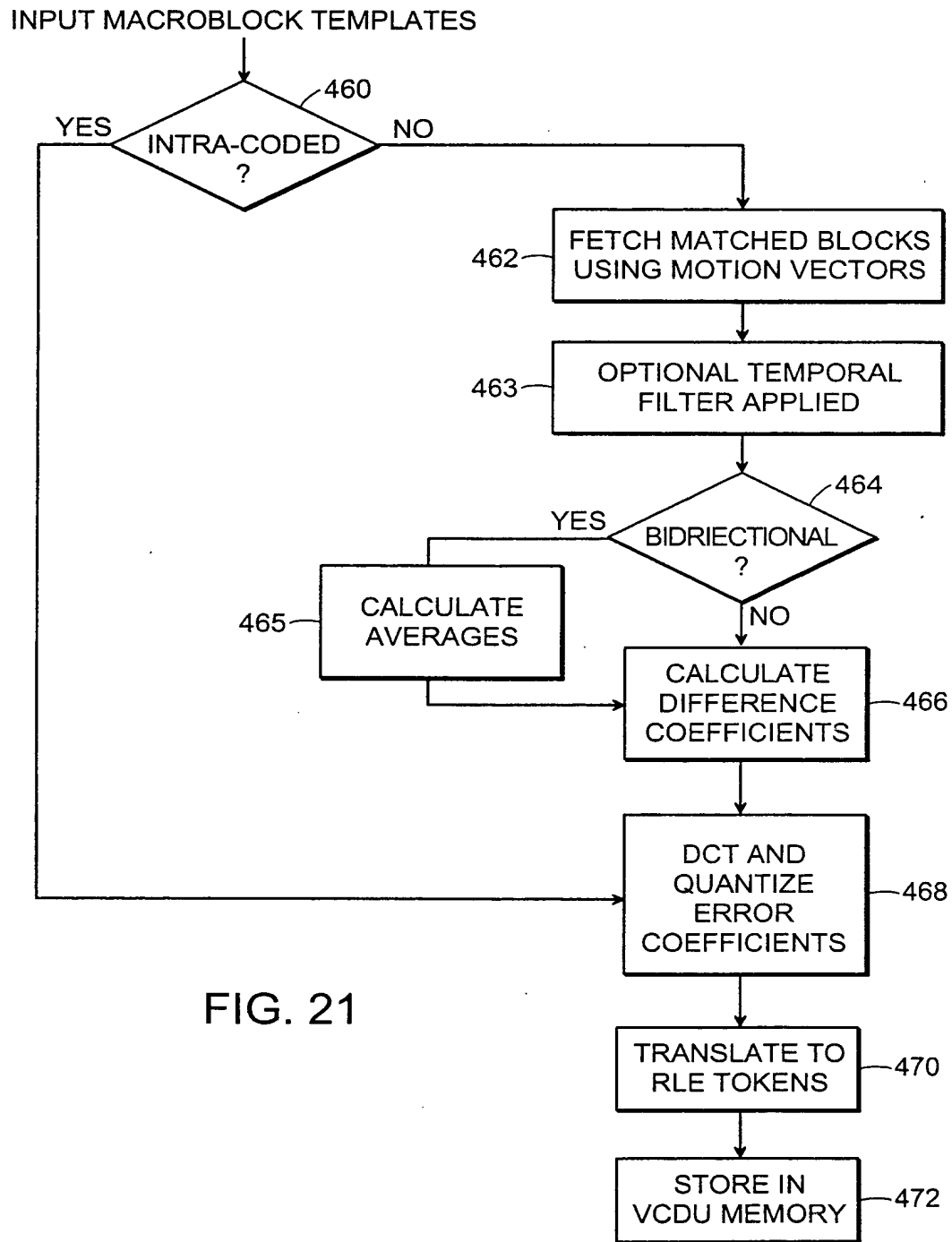


FIG. 20

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FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
301a PRIOR TO REFERENCE FRAME	B	P	B	B		I	B	B	P	B
301b B MATCHES FRAME F	B	P	B	B	b	I	B	B	P	B

FIG. 22A

302

FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
303a SUBSEQUENT TO REF. FRAME	P	B	B	I		B	B	P	B	B
303b b MATCHES FRAME D	P	B	B	I	b	B	B	P	B	B

FIG. 22B

304

FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
305a BETWEEN 2 B FRAMES	B	B	I	B		B	P	B	B	P
305b b MATCHES FRAME G	B	B	I	B	B	b	P	B	B	P

FIG. 22C

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FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
PRIOR TO REFERENCE FRAME	B	P	B	B		I	B	B	P	B
P MATCHES FRAME F	B	P	B	B	I	p	B	B	P	B

FIG. 23A

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FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
SUBSEQUENT TO REF. FRAME	P	B	B	I		B	B	P	B	B
p MATCHES FRAME D	P	B	B	I	p	B	B	P	B	B

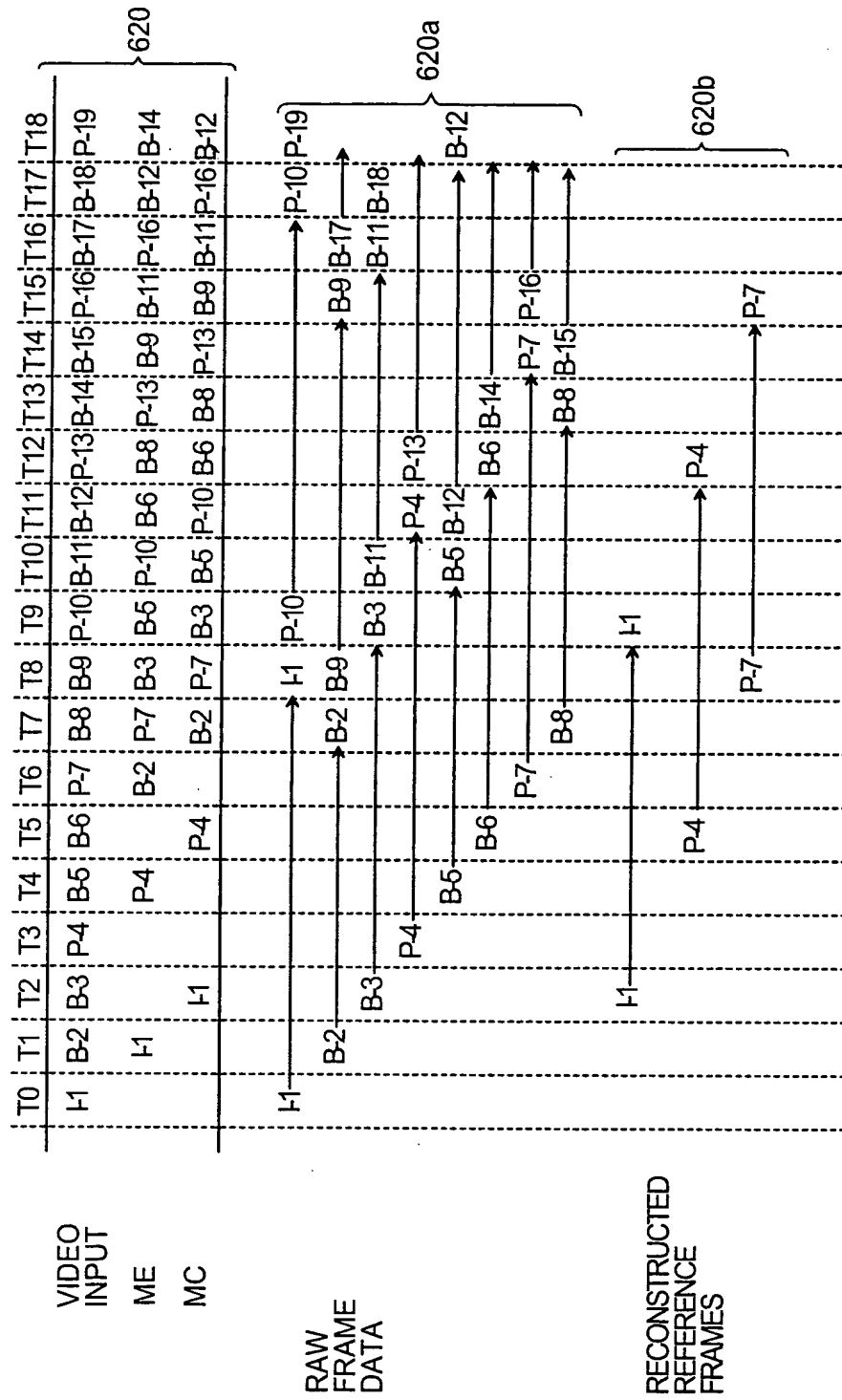
FIG. 23B

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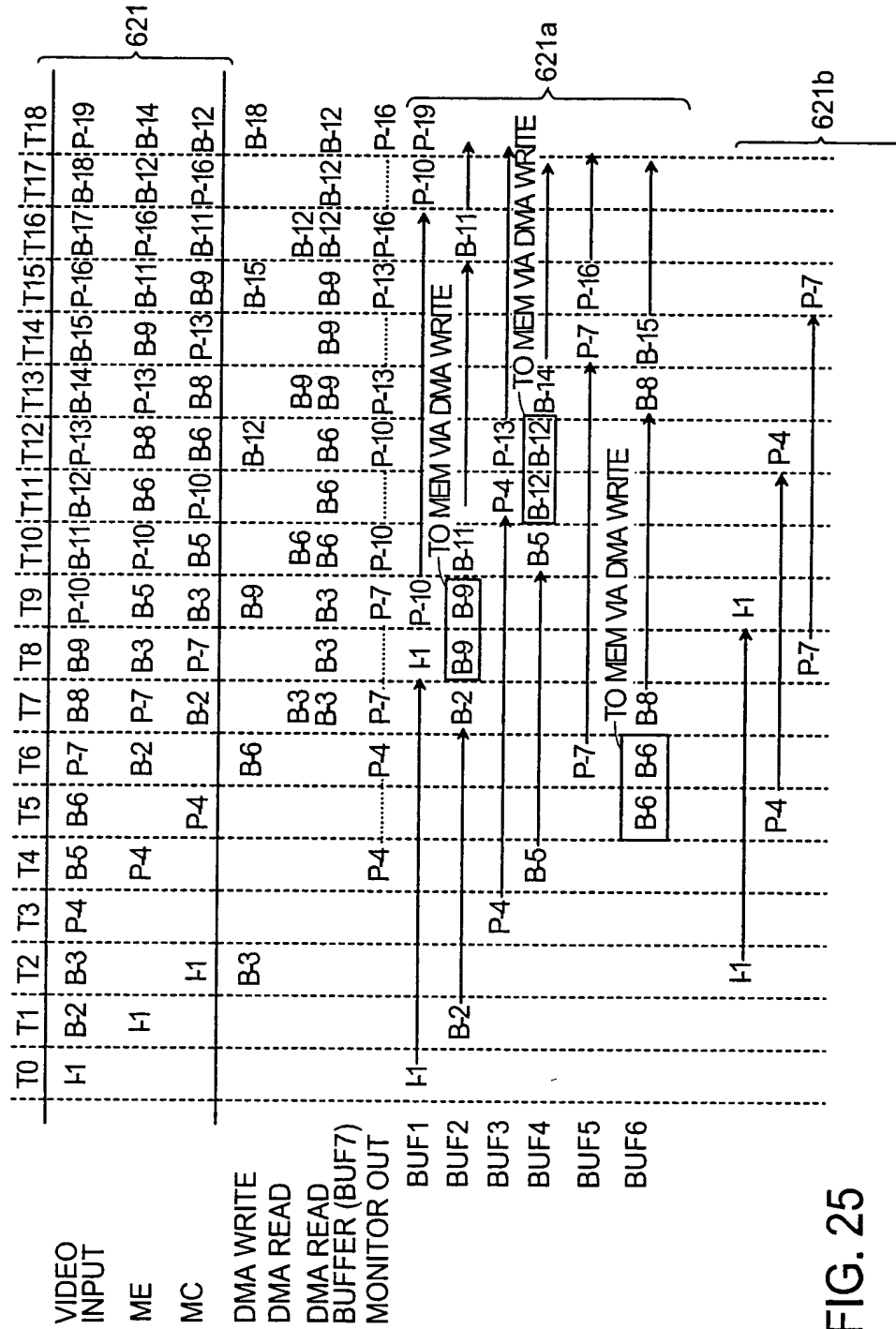
FRAME	A	B	C	D	E	F	G	H	I	J
FRAME INDEX	1	2	3	4	5	6	7	8	9	10
BETWEEN TWO B FRAMES	B	B	I	B		B	P	B	B	P
p MATCHES FRAME G	B	B	I	B	B	P	p	B	B	P

FIG. 23C

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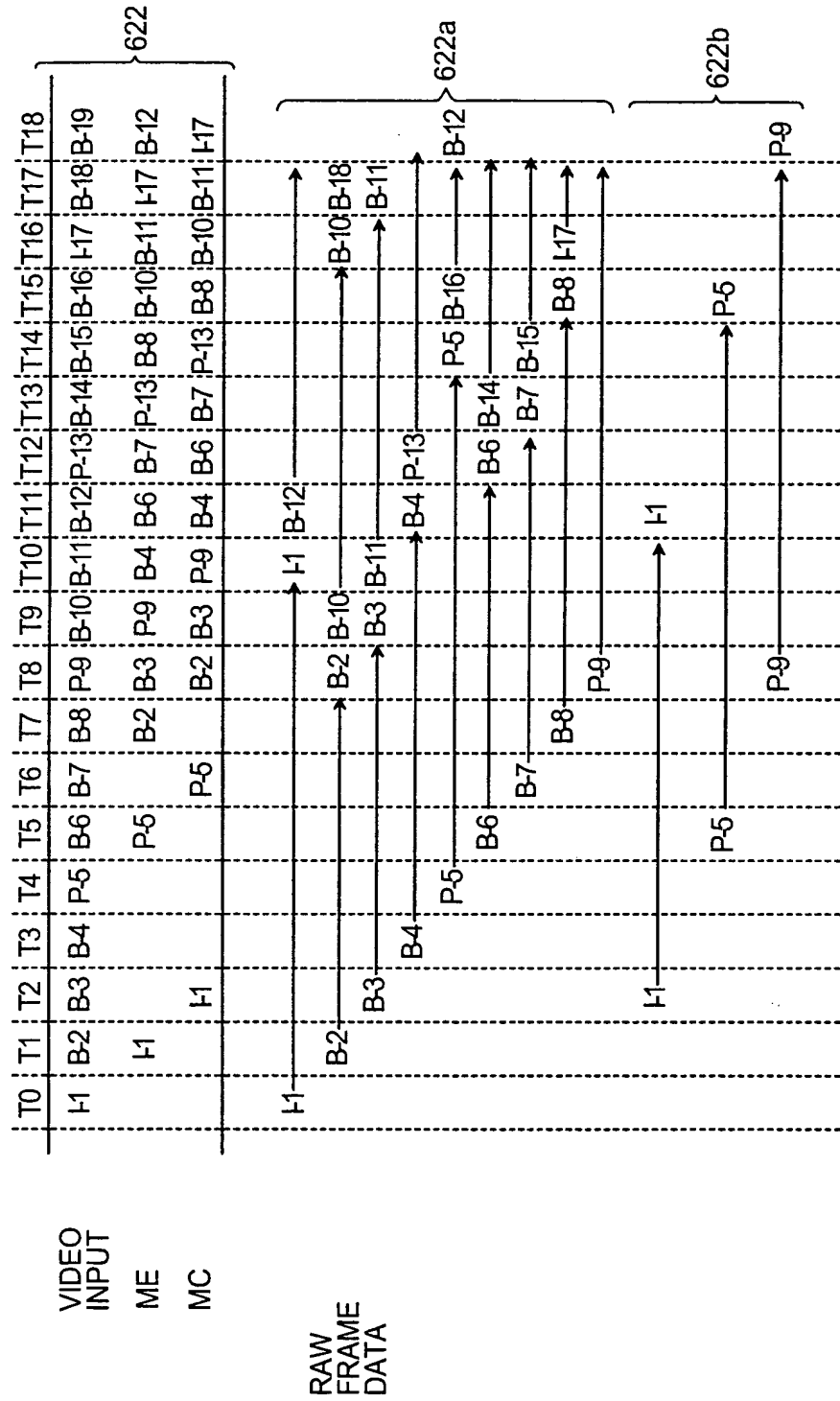


FIG. 26

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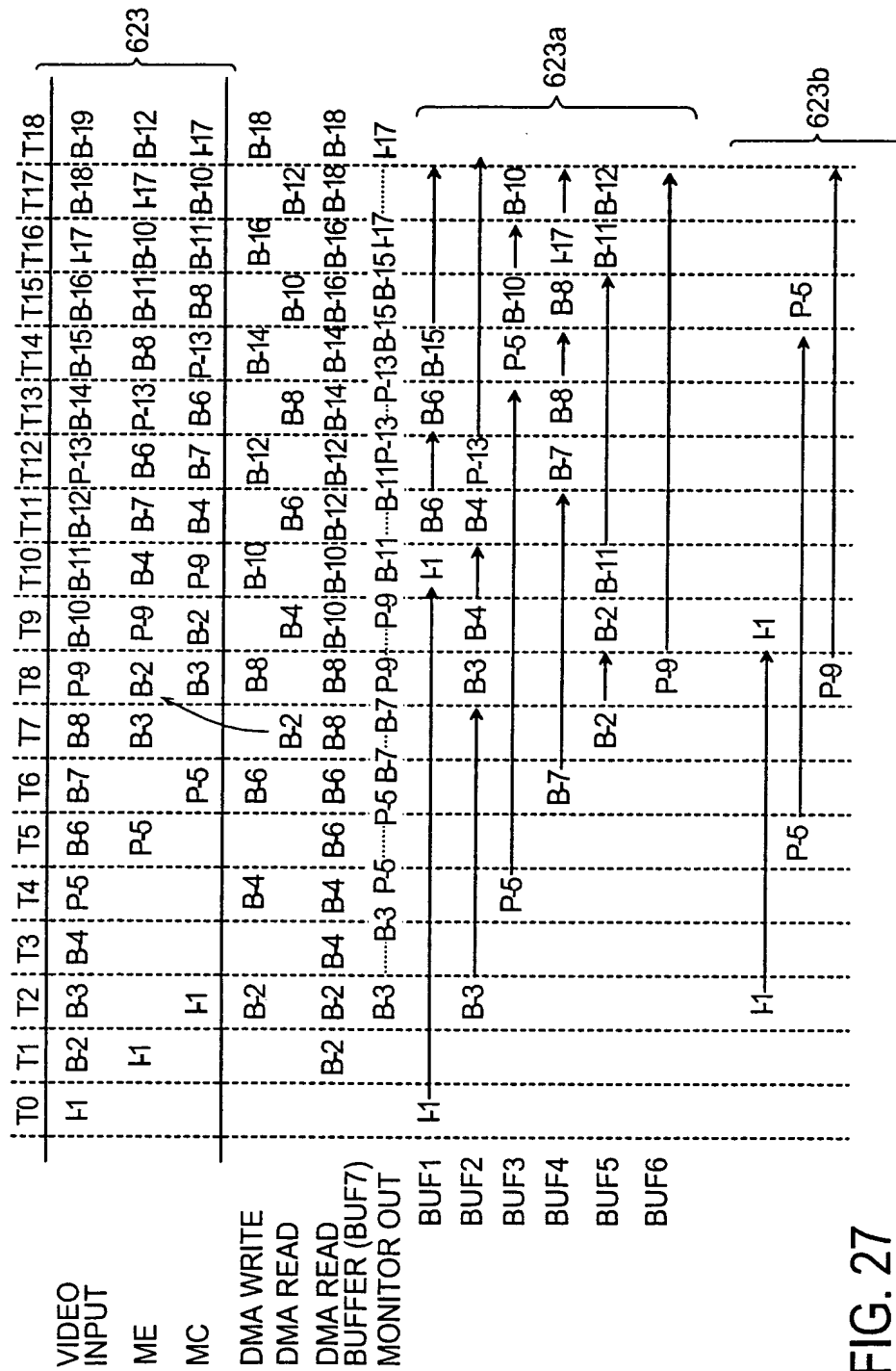


FIG. 27

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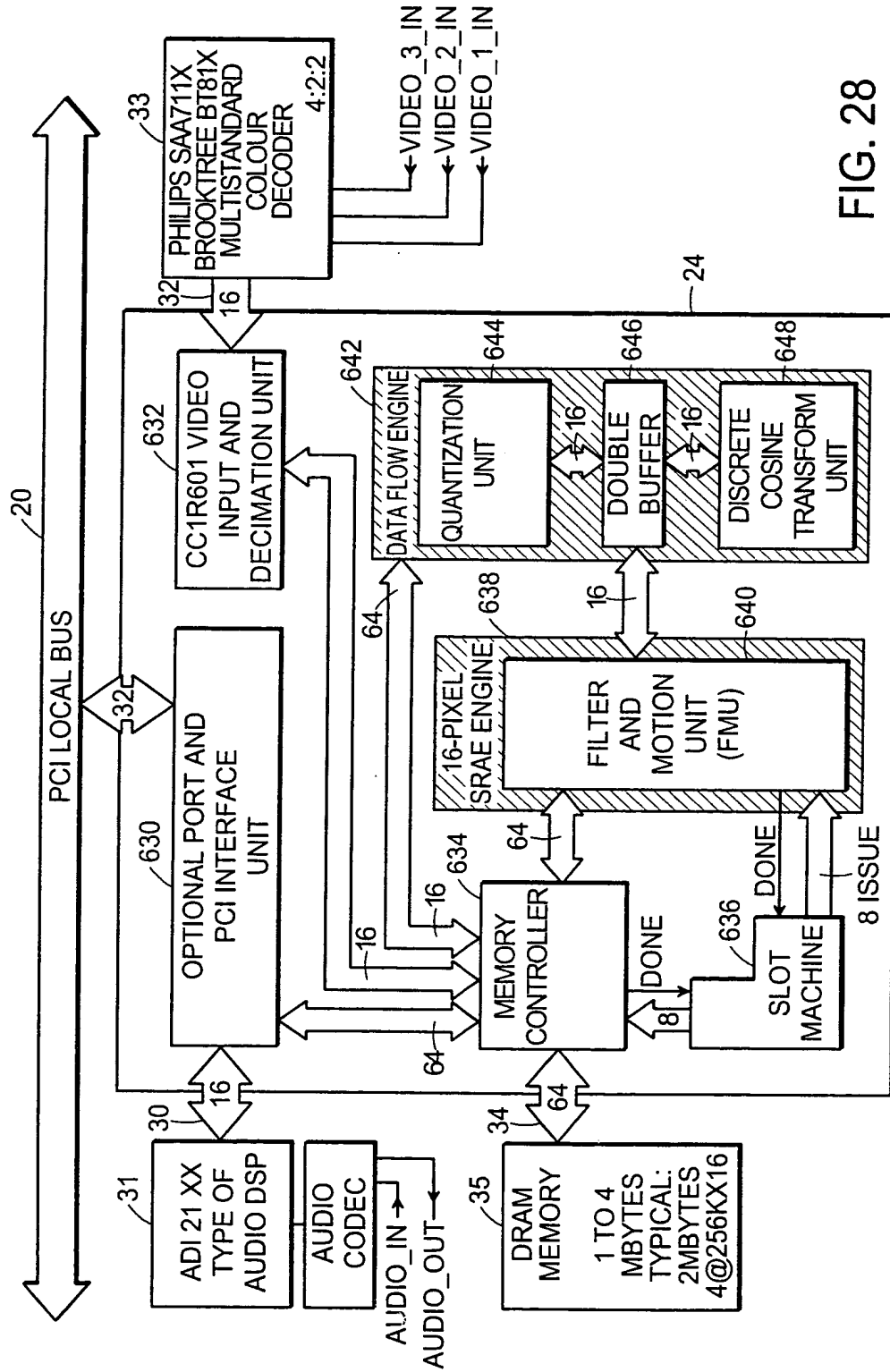
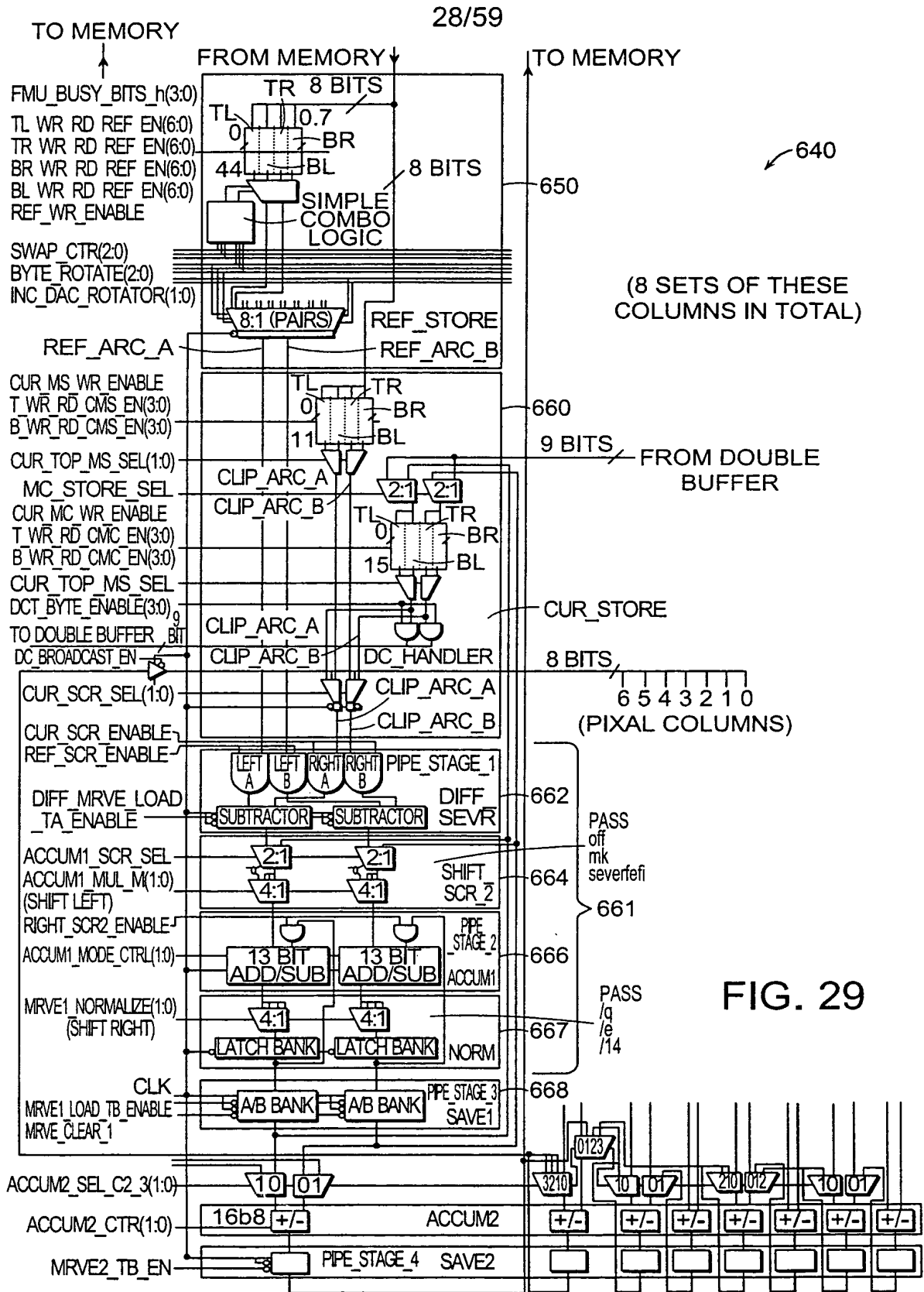


FIG. 28



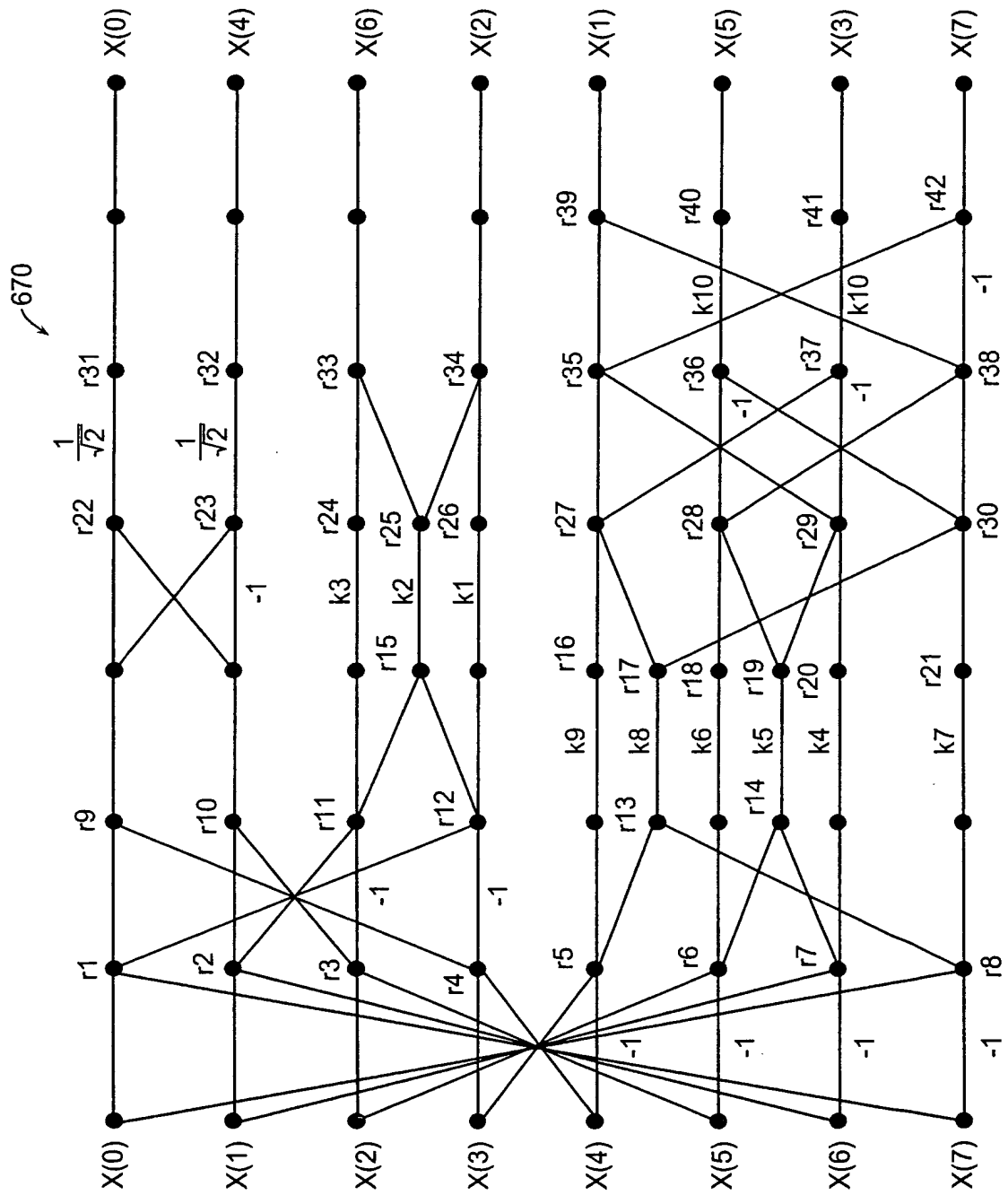


FIG. 30A

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```

/* STAGE 1 */
r3 = o2 + o5;
r6 = o2 - o5;

/* STAGE 2 */
r1 = o0 + o7;
r8 = o0 - o7;
r18 = r6 * 1c6;

/* STAGE 3 */
r2 = o1 + o6;
r7 = o1 - o6;
r21 = r6 * 1c7;

/* STAGE 4 */
r4 = o3 + o4;
r14 = r5 + r7;
r20 = r7 * 1c4;

/* STAGE 5 */
r5 = o3 - o4;
r11 = r2 - r3;
r19 = r14 * 1c5;

/* STAGE 6 */
r10 = r2 + r3;
r16 = r5 * 1c9;

/* STAGE 7 */
r12 = r1 - r4;
r13 = r6 + r5;
r24 = r11 * 1c3;

/* STAGE 8 */
r9 = r1 + r4;
r15 = r11 + r12;
r26 = r12 * 1o1;

/* STAGE 9 */
r22 = r9 + r10;
r25 = r15 * 1c2;

/* STAGE 10 */
r23 = r9 - r10;
r17 = r13 * 1c8;

/* STAGE 11 */
r28 = r18 + r19;
r34 = r28 + r25;

/* STAGE 12 */
r30 = r21 + r17;
r33 = r25 + r24;
r31 = r22 * 1c11;

/* STAGE 13 */
r29 = r19 + r20;
r36 = r30 - r28;
r32 = r23 * 1c11;

/* STAGE 14 */
r27 = r16 + r17;
r36 = r28 + r30;
r40 = r35 * 1c10;

/* STAGE 15 */
r35 = r27 + r29;

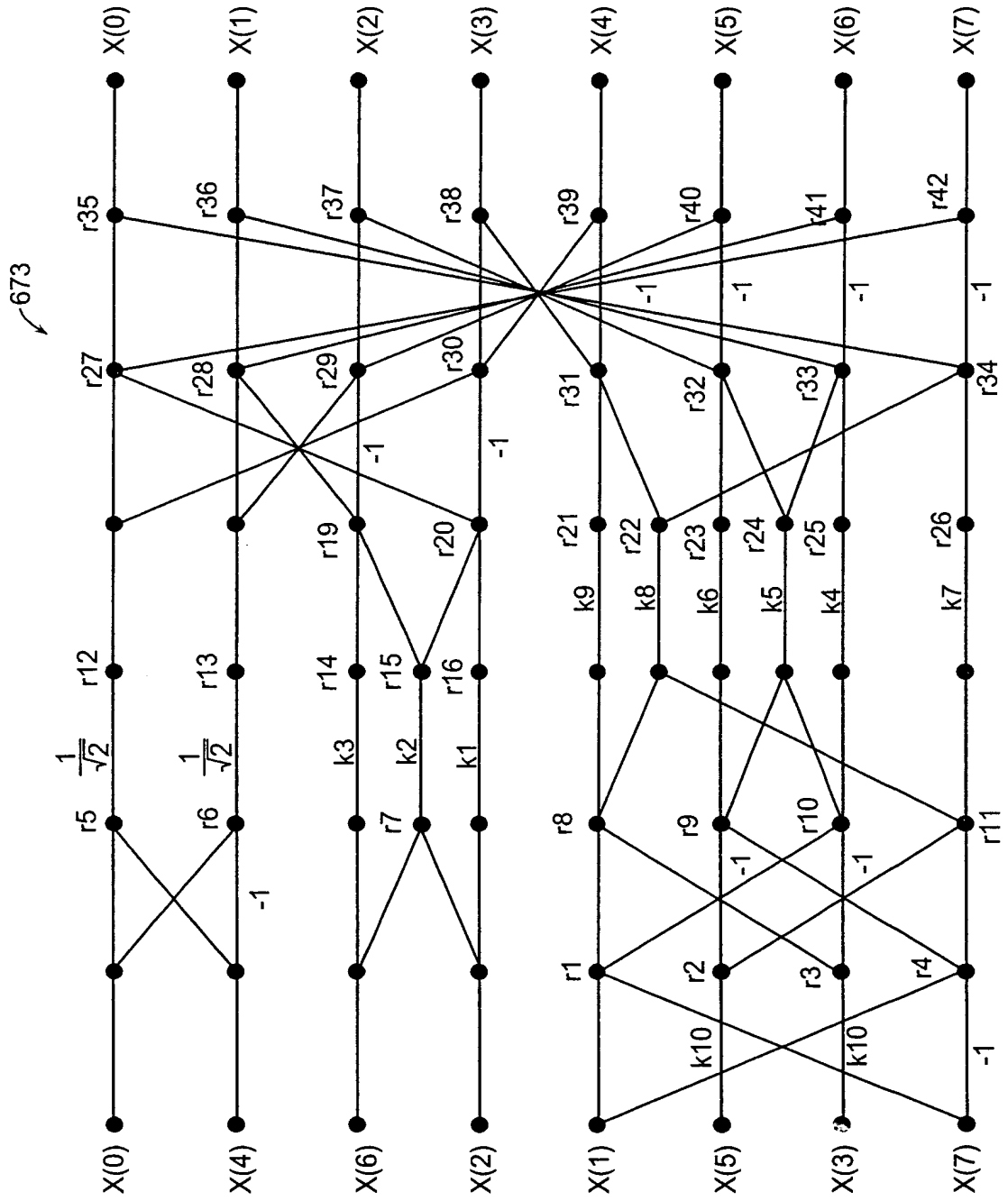
/* STAGE 16 */
r37 = r27 - r29;
r39 = r35 + r38;

/* STAGE 17 */
r42 = r35 - r38;
r41 = r37 * 1c10;

/* STAGE 18 */
r41 = r37 * 1c10;

```

FIG. 30B



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↙

```

/* STAGE 1 */
r2 = o5 * 1c10;

/* STAGE 2 */
r5 = o0 + o4;
r6 = o0 - o4;
r3 = o3 * 1c10;

/* STAGE 3 */
r1 = o1 + o7;
r4 = o1 - o7;
r13 = r6 * 1c11;

/* STAGE 4 */
r7 = o6 + o2;
r8 = r1 + r3;
r14 = o6 * 1c3;

/* STAGE 5 */
r11 = r2 + r4;
r10 = r1 - r3;
r15 = r7 * 1c2;

/* STAGE 6 */
r9 = r4 - r2;
r17 = r11 + r8
r16 = o2 * 1c1;

/* STAGE 7 */
r18 = r9 + r10;
r25 = r10 * 1c4;

/* STAGE 8 */
r20 = r15 + r16;
r24 = r18 * 1c5;

/* STAGE 9 */
r19 = r14 + r15;
r23 = r9 * 1c6;

/* STAGE 10 */
r28 = r19 + r13;
r33 = r25 + r24;
r21 = r8 * 1c9;

/* STAGE 11 */
r29 = r13 - r19;
r36 = r28 + r33;
r22 = r17 * 1c8;

/* STAGE 12 */
r32 = r23 + r24;
r41 = r28 - r33;
r12 = r5 * 1c11;

/* STAGE 13 */
r31 = r21 + r22;
r37 = r29 + r32;
r26 = r11 * 1c7;

/* STAGE 14 */
r30 = r12 - r20;
r40 = r29 - r32;

/* STAGE 15 */
r27 = r20 + r12;
r38 = r30 + r31;

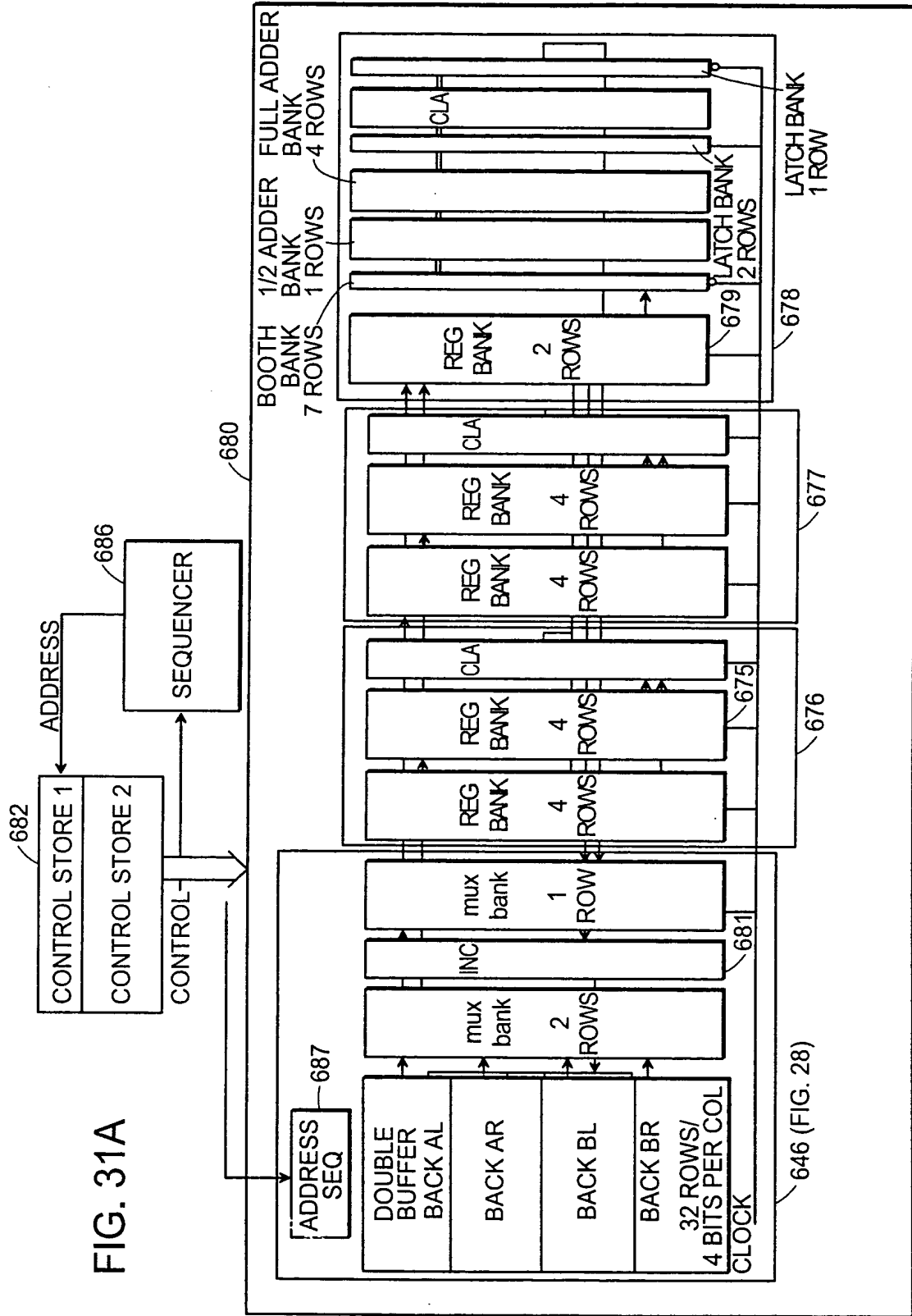
/* STAGE 16 */
r34 = r22 + r26;
r39 = r30 - r31;

/* STAGE 17 */
r35 = r27 + r34;

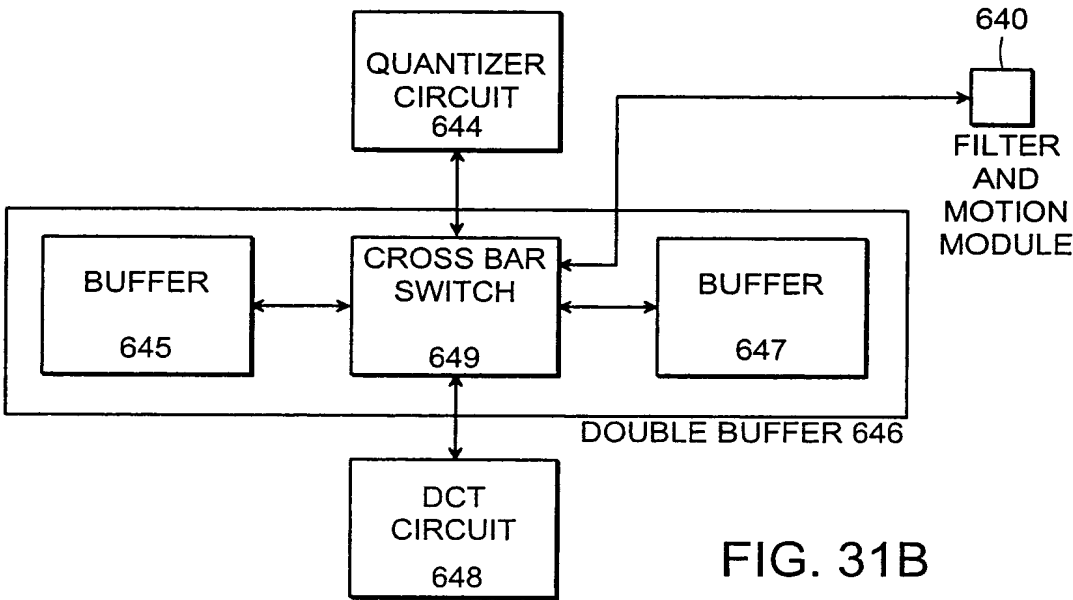
/* STAGE 18 */
r42 = r27 - r34;

```

FIG. 30D



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BLOCK ELEMENT ARRAY:

		LEFT OPERAND ROW TRANSFORM				RIGHT OPERAND ROW TRANSFORM				ROW TRANSFORM
		0	1	2	3	4	5	6	7	
LEFT OPERAND COLUMN TRANSFORM	8	9	10	11		12	13	14	15	
	16	17	18	19		20	21	22	23	
	24	25	26	27		28	29	30	31	
RIGHT OPERAND COLUMN TRANSFORM	32	33	34	35		36	37	38	39	
	40	41	42	43		44	45	46	47	
	48	49	50	51		52	53	54	55	
	56	57	58	59		60	61	62	63	
		COLUMN TRANSFORM								

FIG. 32

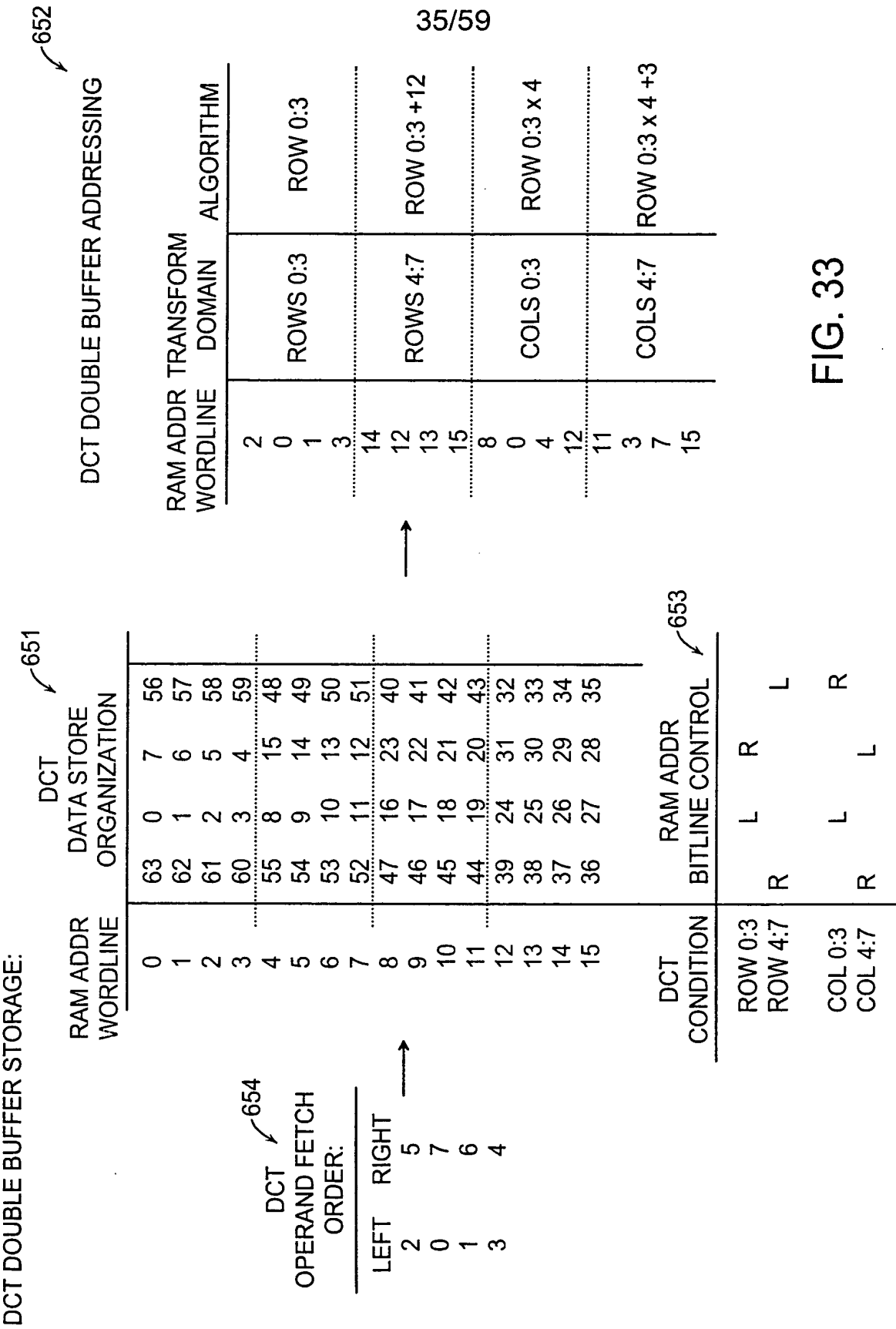
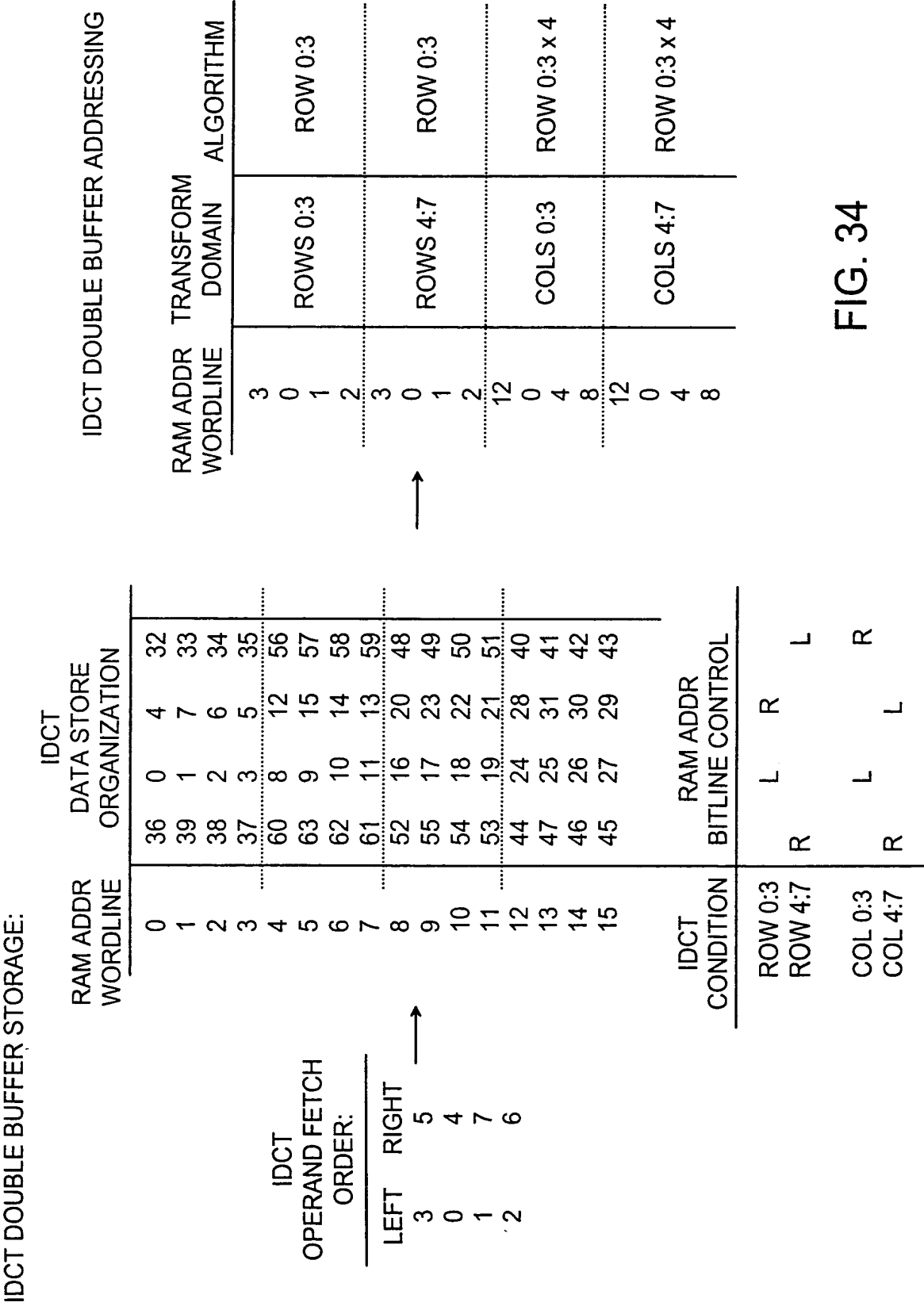


FIG. 33



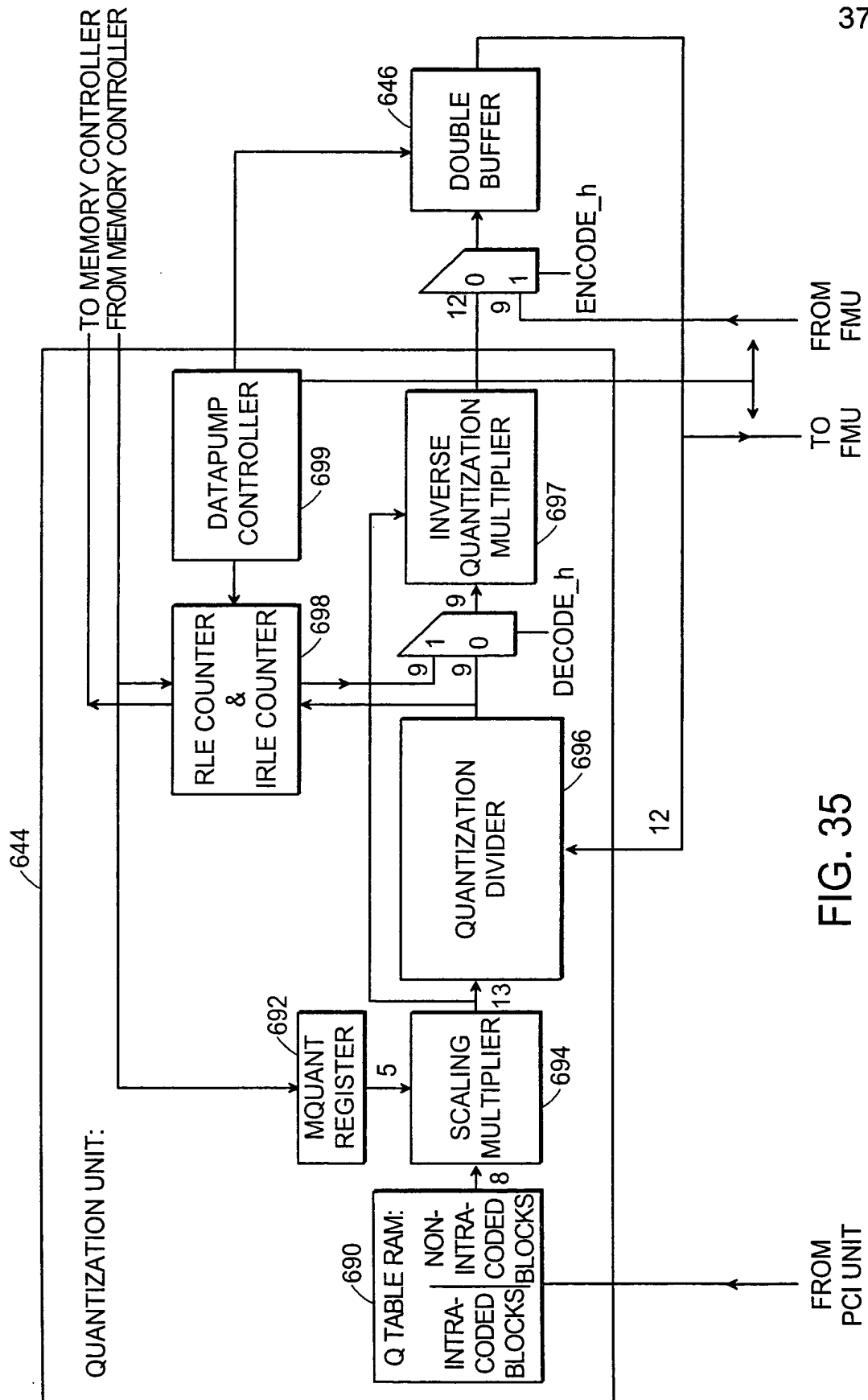


FIG. 35

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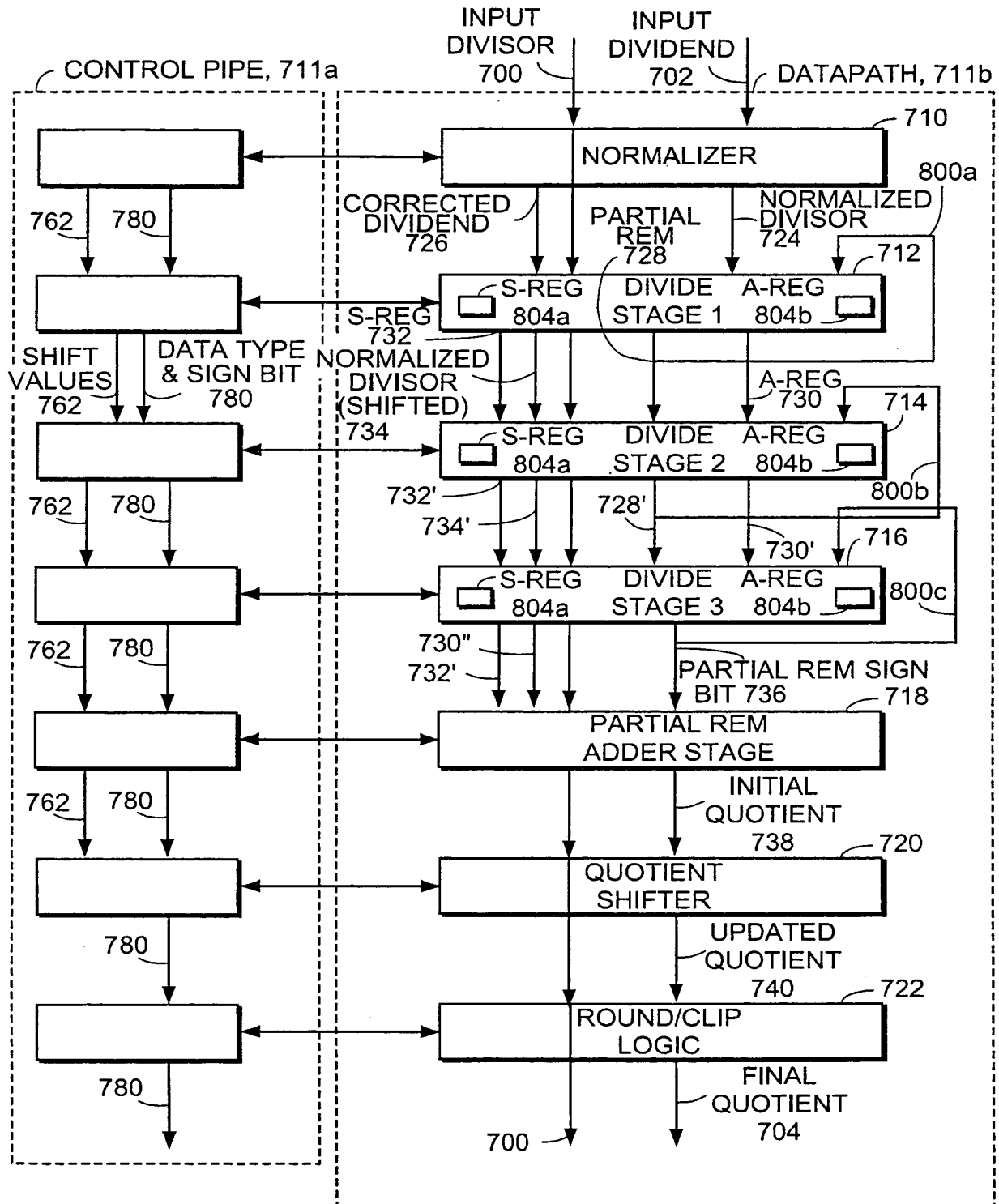


FIG. 36

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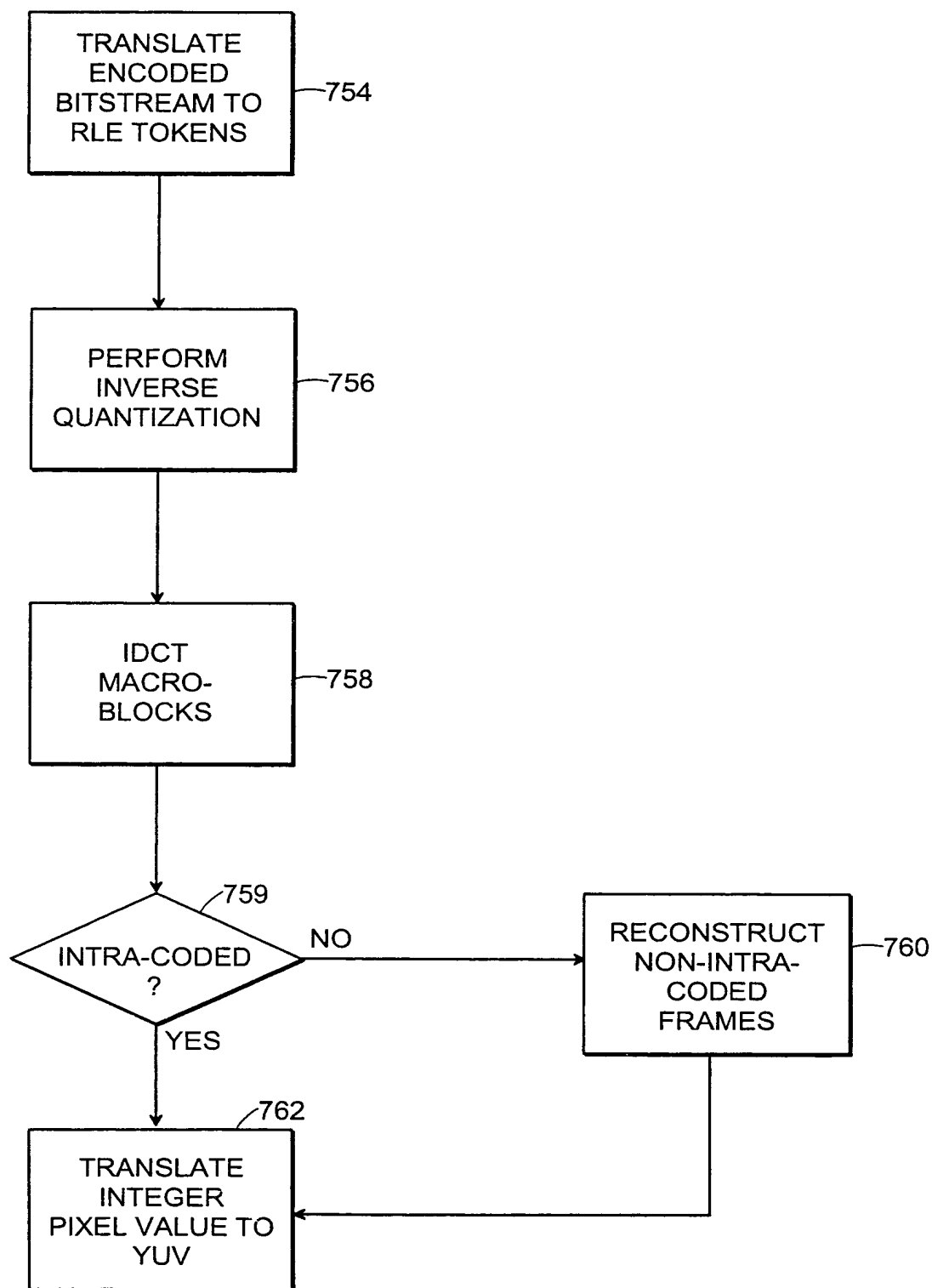


FIG. 37

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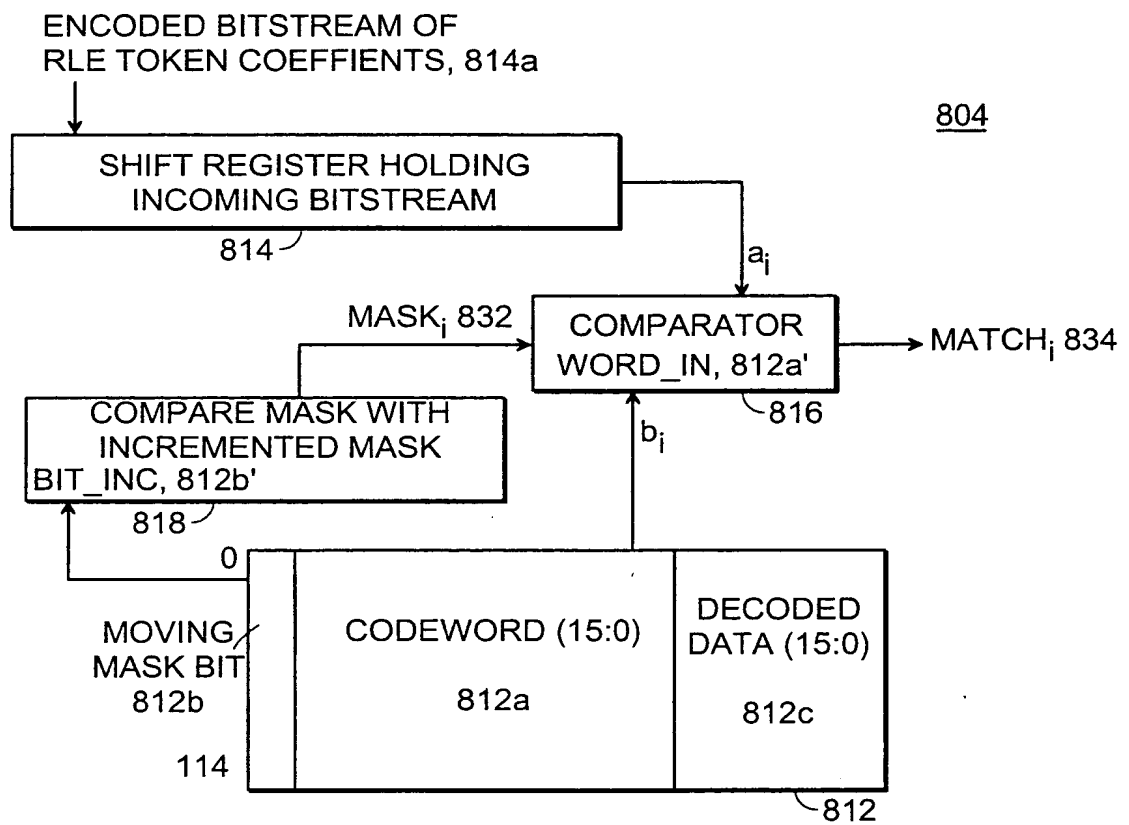
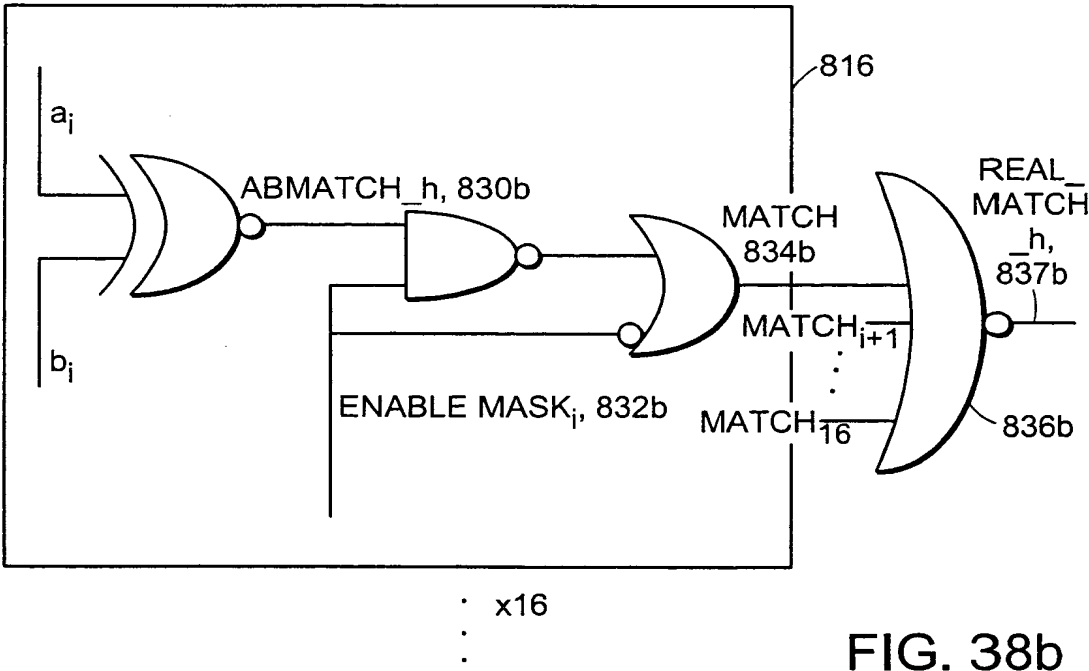
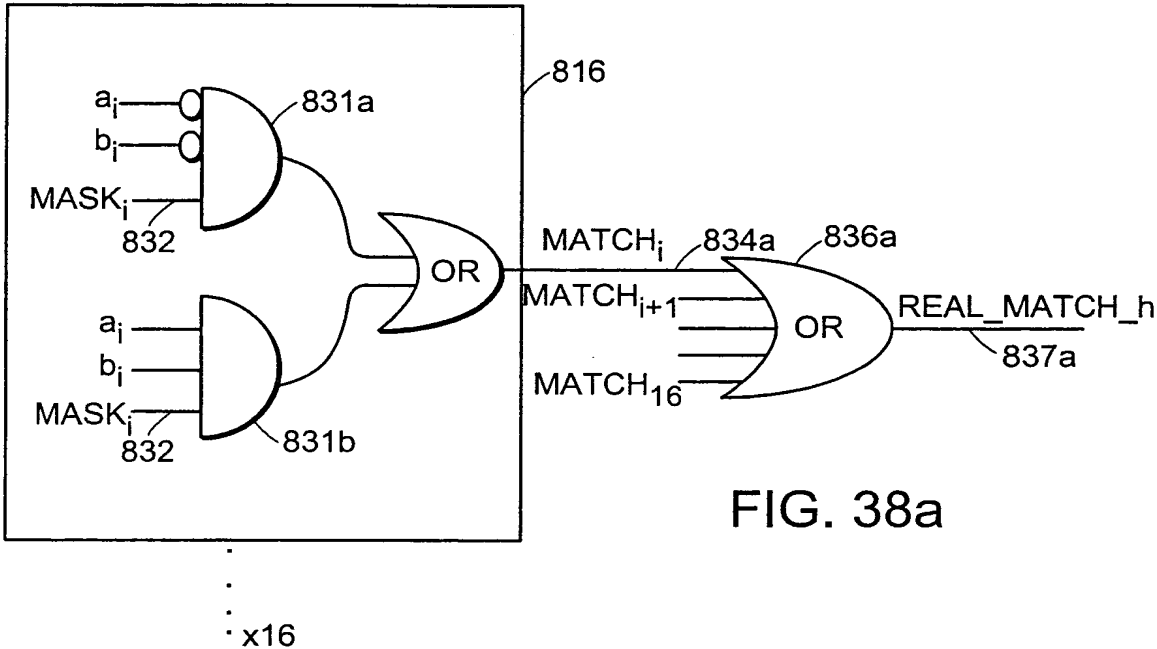


FIG. 38



ENCODED INCOMING BITSTREAM 814a

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1	0	0	1	0	1	0	0	1	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1	1	0

FIG. 39

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CODE WORD TABLE 812

MOVING MASK BIT 812b	VARIABLE LENGTH CODE (812a) NOTE1	DECODED DATA (RUN) 812c	DECODED DATA (LEVEL) 812c
0	10	END OF BLOCK	
0	1 s(NOTE2)	0	1
1	11 s (NOTE3)	0	1
1	011 s	1	1
1	0100 s	0	2
0	0101 s	2	1
1	0010 1 s	0	3
0	0011 1 s	3	1
0	0011 0 s	4	1
1	0001 10 s	1	2
0	0001 11 s	5	1
0	0001 01 s	6	1
0	0001 00 s	7	1
0	0000 01 s	ESCAPE	
1	0000 110 s	0	4
0	0000 100 s	2	2
0	0000 111 s	8	1
0	0000 101 s	9	1
1	0010 0110 s	0	5
0	0010 0001 s	0	6
0	0010 0101 s	1	3
0	0010 0100 s	3	2
0	0010 0111 s	10	1
0	0010 0011 s	11	1
0	0010 0010 s	12	1
0	0010 0000 s	13	1
1	0010 0000 s	13	1
0	0000 0010 10 s	0	7
0	0000 0011 00 s	1	4
0	0000 0010 11 s	2	3
0	0000 0011 11 s	4	2
0	0000 0010 01 s	5	2
0	0000 0011 10 s	14	1
0	0000 0011 01 s	15	1
0	0000 0010 00 s	16	1
NOTE1-THE LAST BIT 's' DENOTES THE SIGN OF THE LEVEL, '0' FOR POSITIVE, '1' FOR NEGATIVE.			
NOTE2-THIS CODE SHALL BE USED FOR THE FIRST (DC) COEFFICIENT IN THE BLOCK			
NOTE3-THIS CODE SHALL BE USED FOR ALL OTHER COEFFICIENTS.			

FIG. 39a

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CODE WORD TABLE 812 (CONTINUED)

MOVING MASK BIT 812b	VARIABLE LENGTH CODE (812a)	DECODED DATA (RUN) 812c	DECODED DATA (LEVEL) 812c
0	0000 0001 1101 s	0	8
0	0000 0001 1000 s	0	9
0	0000 0001 0011 s	0	10
0	0000 0001 0000 s	0	11
0	0000 0001 1011 s	1	5
0	0000 0001 0100 s	2	4
0	0000 0001 1100 s	3	3
0	0000 0001 0010 s	4	3
0	0000 0001 1110 s	6	2
0	0000 0001 0101 s	7	2
0	0000 0001 0001 s	8	2
0	0000 0001 1111 s	17	1
0	0000 0001 1010 s	18	1
0	0000 0001 1001 s	19	1
0	0000 0001 0111 s	20	1
0	0000 0001 0110 s	21	1
1	0000 0000 1101 0 s	0	12
0	0000 0000 1100 1 s	0	13
0	0000 0000 1100 0 s	0	14
0	0000 0000 1011 1 s	0	15
0	0000 0000 1011 0 s	1	6
0	0000 0000 1010 1 s	1	7
0	0000 0000 1010 0 s	2	5
0	0000 0000 1001 1 s	3	4
0	0000 0000 1001 0 s	5	3
0	0000 0000 1000 1 s	9	2
0	0000 0000 1000 0 s	10	2
0	0000 0000 1111 1 s	22	1
0	0000 0000 1111 0 s	23	1
0	0000 0000 1110 1 s	24	1
0	0000 0000 1110 0 s	25	1
0	0000 0000 1101 1 s	26	1
NOTE-THE LAST BIT 'S' DENOTES THE SIGN OF THE LEVEL, '0' FOR POSITIVE, '1' FOR NEGATIVE.			

FIG. 39b

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CODE WORD TABLE 812 (CONTINUED)

MOVING MASK BIT 812b	VARIABLE LENGTH CODE (812a)	DECODED DATA (RUN) 812c	DECODED DATA (LEVEL) 812c
1	0000 0000 0111 11 s	0	16
0	0000 0000 0111 10 s	0	17
0	0000 0000 0111 01 s	0	18
0	0000 0000 0111 00 s	0	19
0	0000 0000 0110 11 s	0	20
0	0000 0000 0110 10 s	0	21
0	0000 0000 0110 01 s	0	22
0	0000 0000 0110 00 s	0	23
0	0000 0000 0101 11 s	0	24
0	0000 0000 0101 10 s	0	25
0	0000 0000 0101 01 s	0	26
0	0000 0000 0101 00 s	0	27
0	0000 0000 0100 11 s	0	28
0	0000 0000 0100 10 s	0	29
0	0000 0000 0100 01 s	0	30
0	0000 0000 0100 00 s	0	31
1	0000 0000 0011 000 s	0	32
0	0000 0000 0010 111 s	0	33
0	0000 0000 0010 110 s	0	34
0	0000 0000 0010 101 s	0	35
0	0000 0000 0010 100 s	0	36
0	0000 0000 0010 011 s	0	37
0	0000 0000 0010 010 s	0	38
0	0000 0000 0010 001 s	0	39
0	0000 0000 0010 000 s	0	40
0	0000 0000 0011 111 s	1	8
0	0000 0000 0011 110 s	1	9
0	0000 0000 0011 101 s	1	10
0	0000 0000 0011 100 s	1	11
0	0000 0000 0011 011 s	1	12
0	0000 0000 0011 010 s	1	13
0	0000 0000 0011 001 s	1	14
NOTE-THE LAST BIT 'S' DENOTES THE SIGN OF THE LEVEL, '0' FOR POSITIVE, '1' FOR NEGATIVE.			

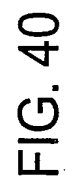
FIG. 39c

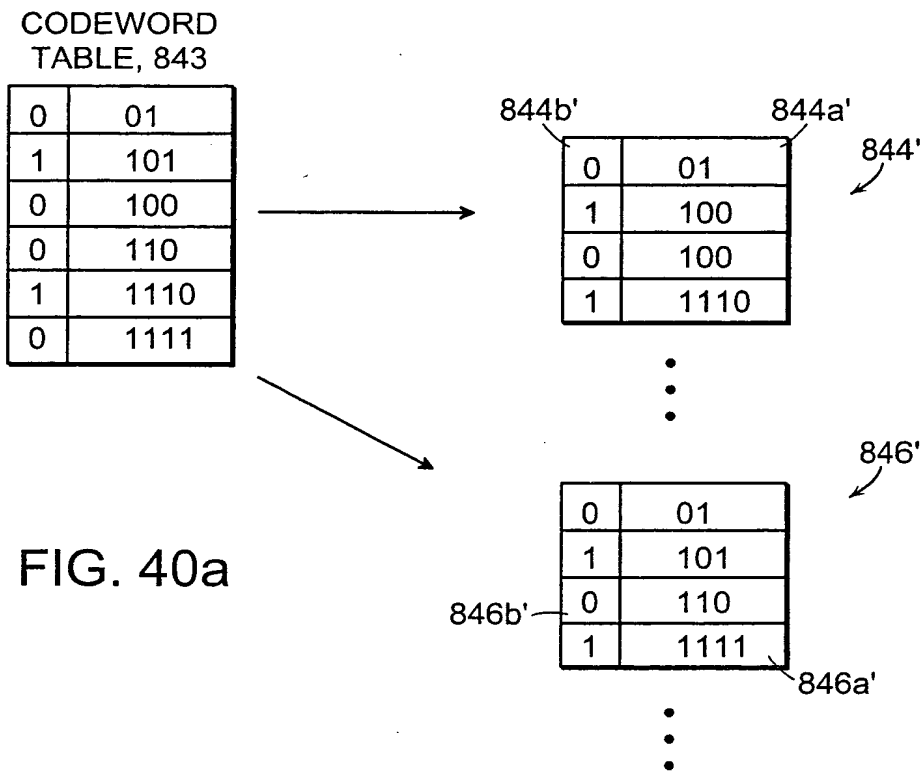
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CODE WORD TABLE 812 (CONCLUDED)

MOVING MASK BIT 812b	VARIABLE LENGTH CODE (812a)	DECODED DATA (RUN) 812c	DECODED DATA (LEVEL) 812c
1	0000 0000 0001 0011 s	1	15
0	0000 0000 0001 0010 s	1	16
0	0000 0000 0001 0001 s	1	17
0	0000 0000 0001 0000 s	1	18
0	0000 0000 0001 0100 s	6	3
0	0000 0000 0001 1010 s	11	2
0	0000 0000 0001 1001 s	12	2
0	0000 0000 0001 1000 s	13	2
0	0000 0000 0001 0111 s	14	2
0	0000 0000 0001 0110 s	15	2
0	0000 0000 0001 0101 s	16	2
0	0000 0000 0001 1111 s	27	1
0	0000 0000 0001 1110 s	28	1
0	0000 0000 0001 1101 s	29	1
0	0000 0000 0001 1100 s	30	1
0	0000 0000 0001 1011 s	31	1
NOTE-THE LAST BIT 'S' DENOTES THE SIGN OF THE LEVEL, '0' FOR POSITIVE, '1' FOR NEGATIVE.			

FIG. 39d





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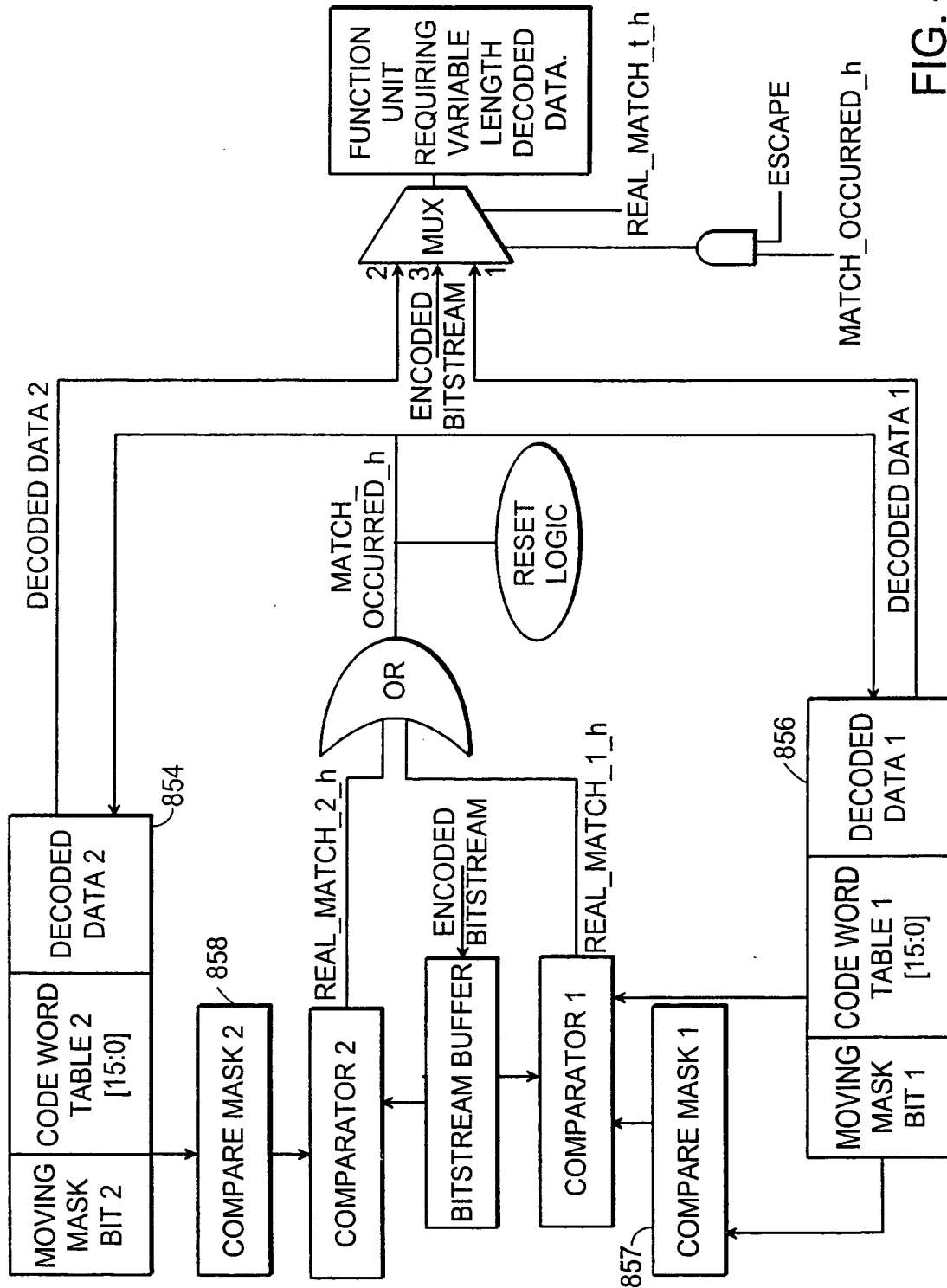


FIG. 41

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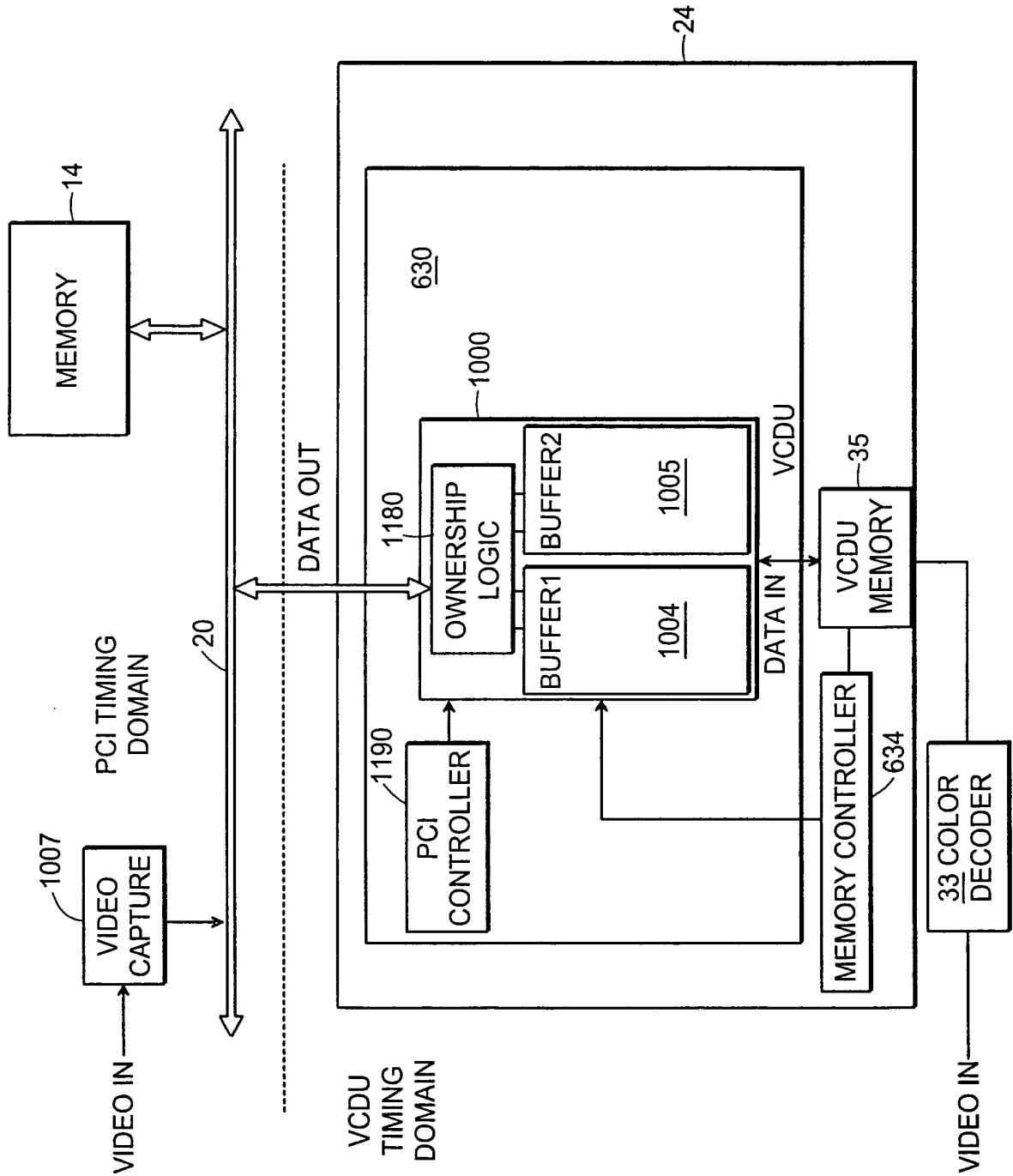


FIG. 42

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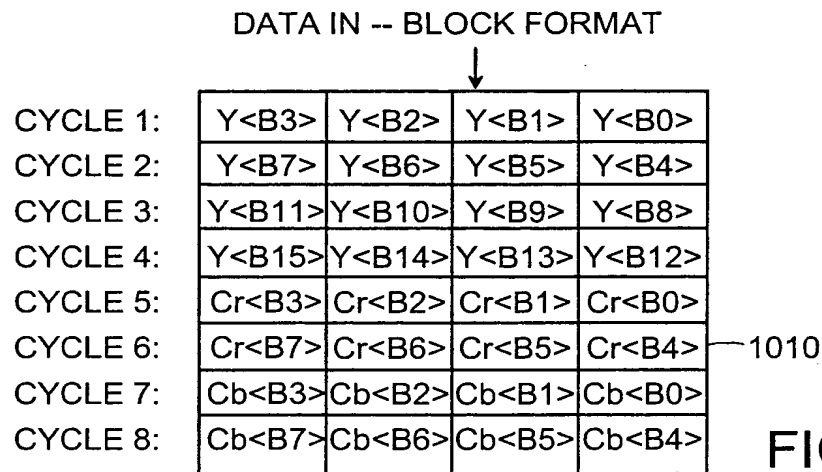


FIG. 43A

Y U V 4:2:2 FORMAT:

	31-24	23-16	15-8	7-0	
LITTLE-ENDIAN	Cb<B n>	Y<Bn+1>	Cr<B n>	Y<B n>	1012a
GIB-ENDIAN	Y<B n+1>	Cb<Bn>	Y<Bn>	Cr<Bn>	1012b

FIG. 43B

Y U V 4:2:0 FORMAT:

Y<Bn>	Y<B n+1>
Y<B n+2>	Y<B n+3>
Cr<B n>	Cb<B n>

FIG. 43C

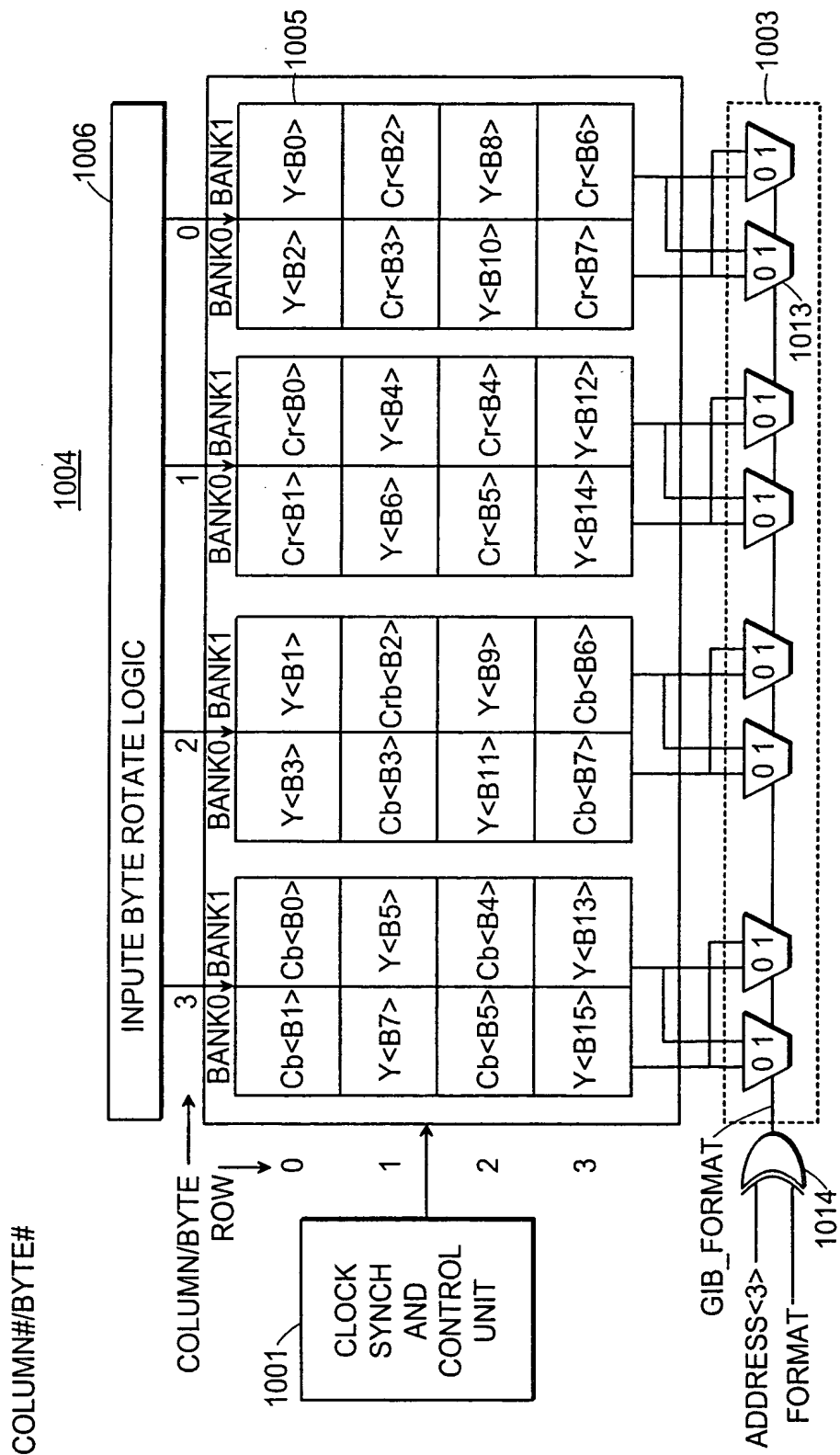
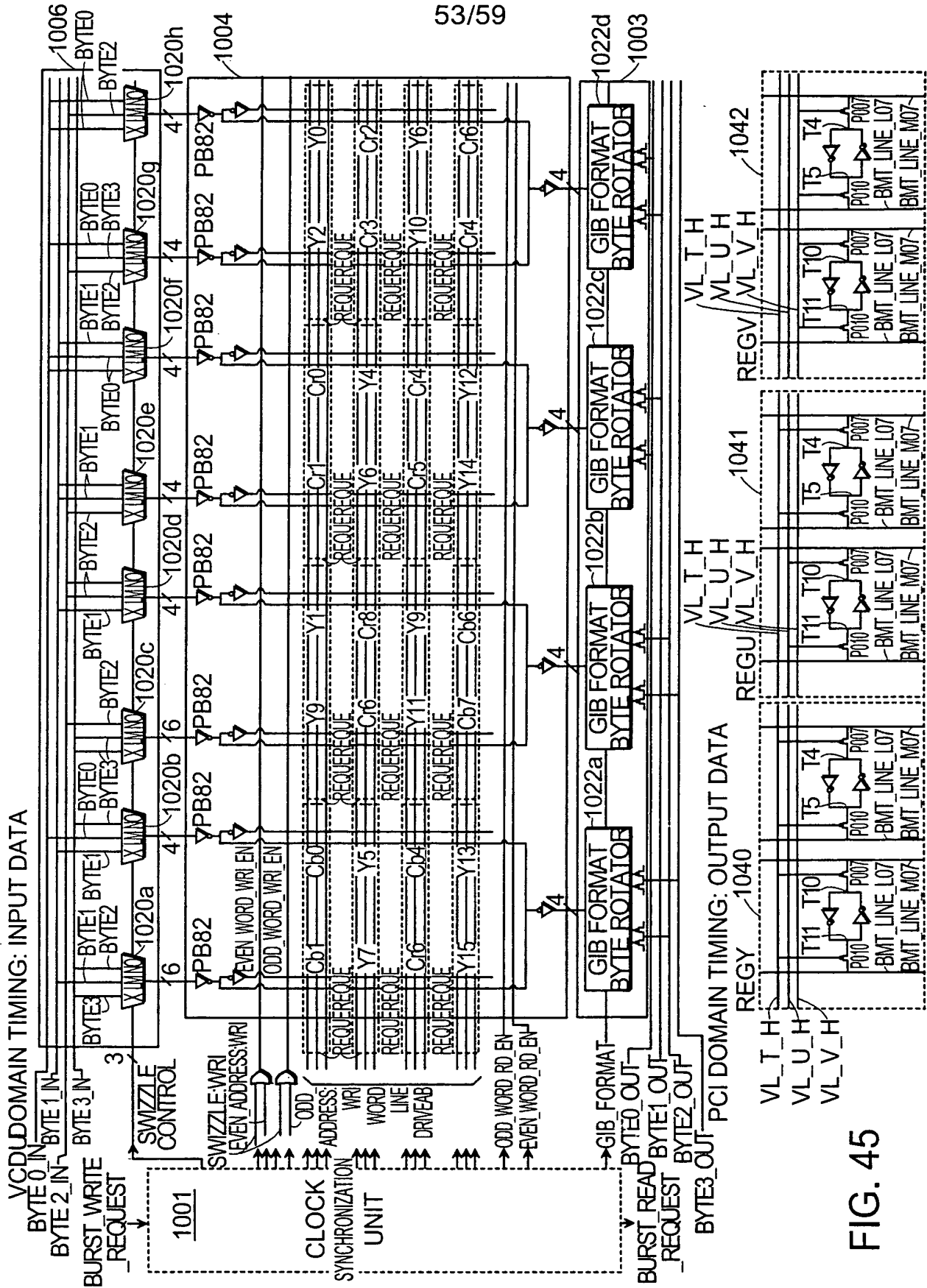


FIG. 44

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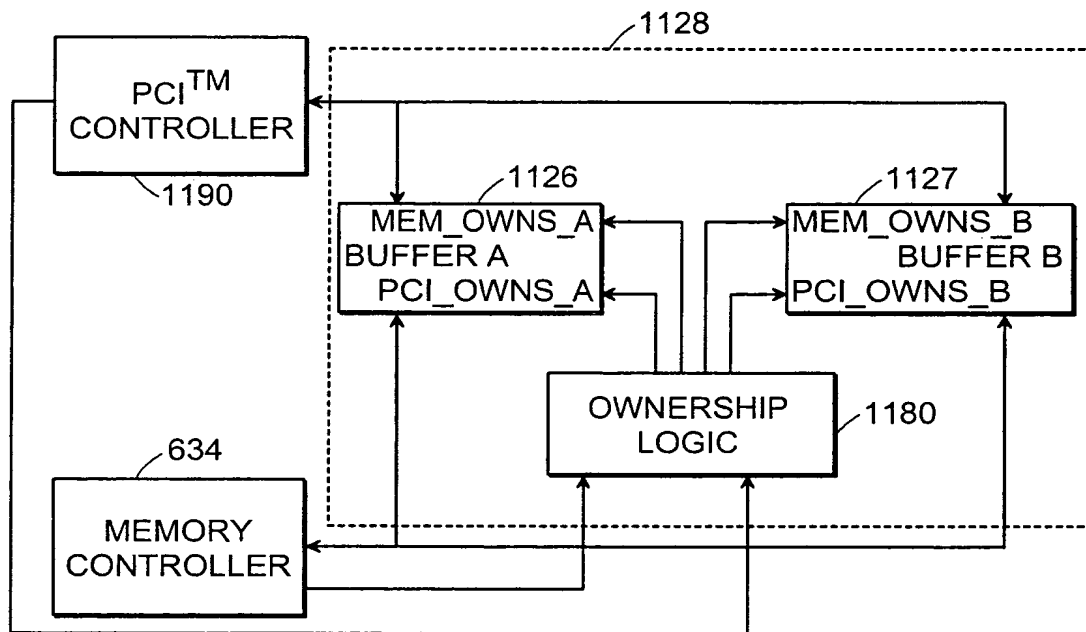


FIG. 46

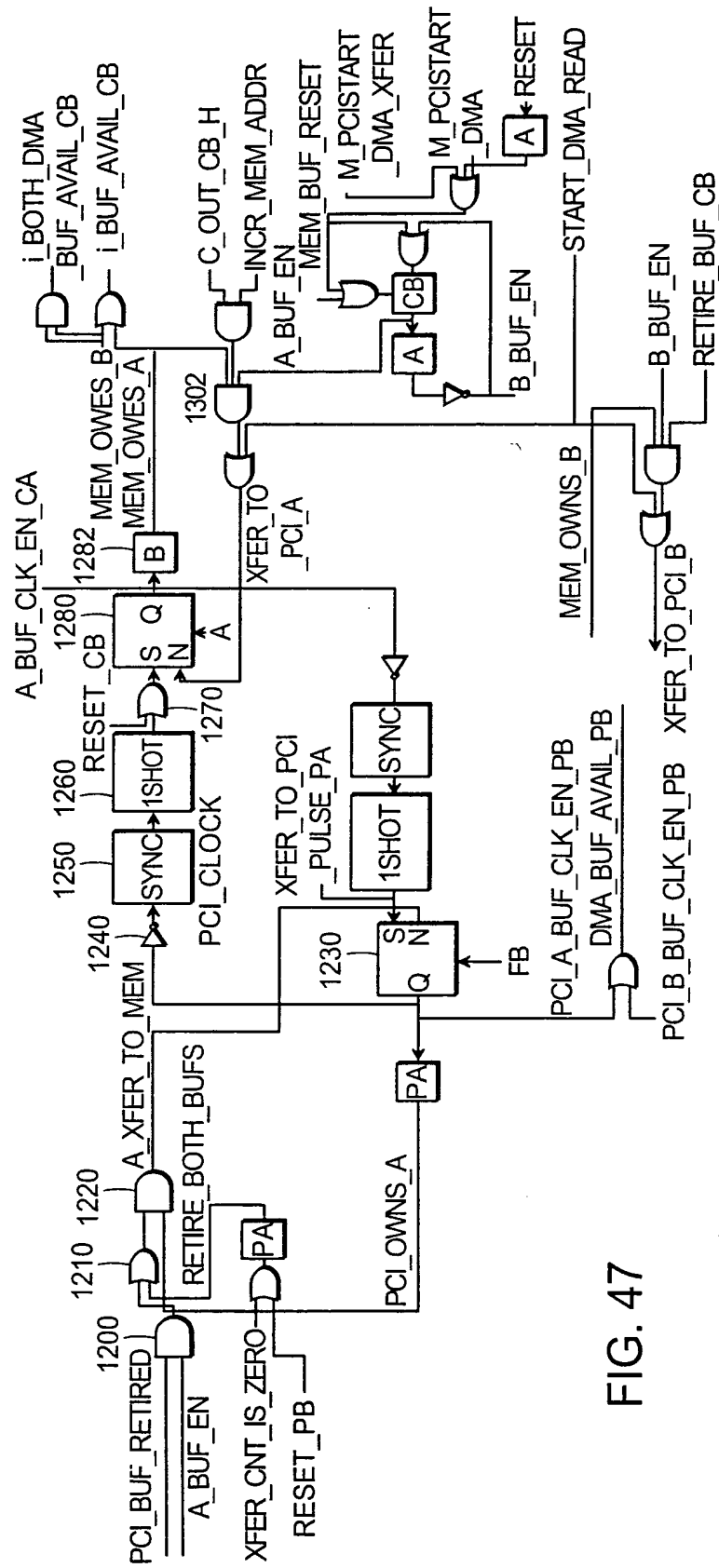


FIG. 47

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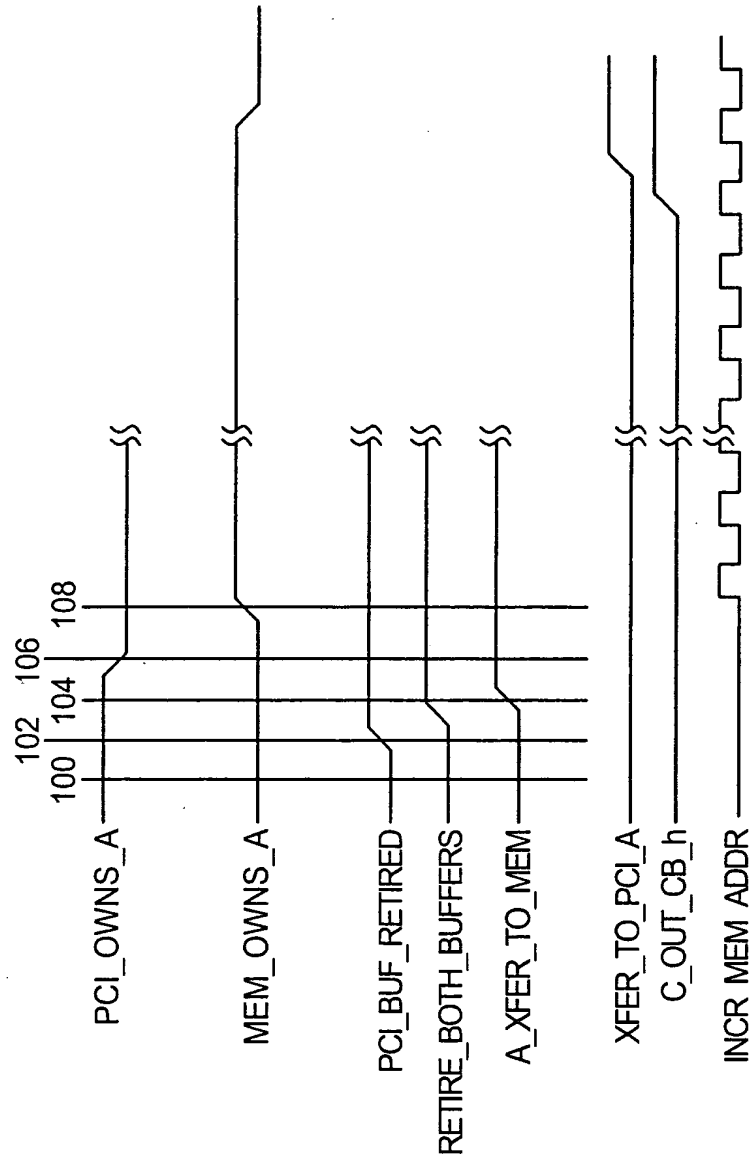


FIG. 48

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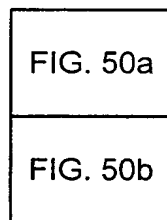
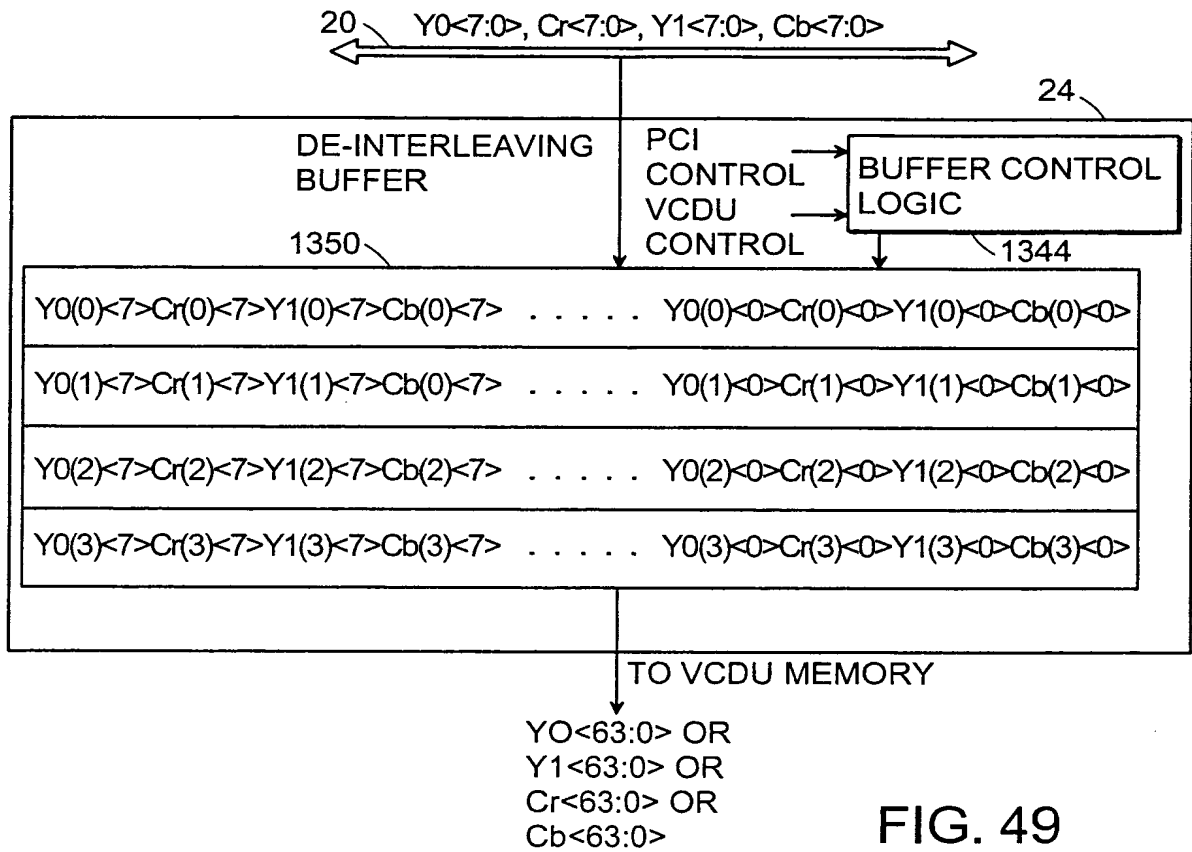


FIG. 50

FIG. 50a

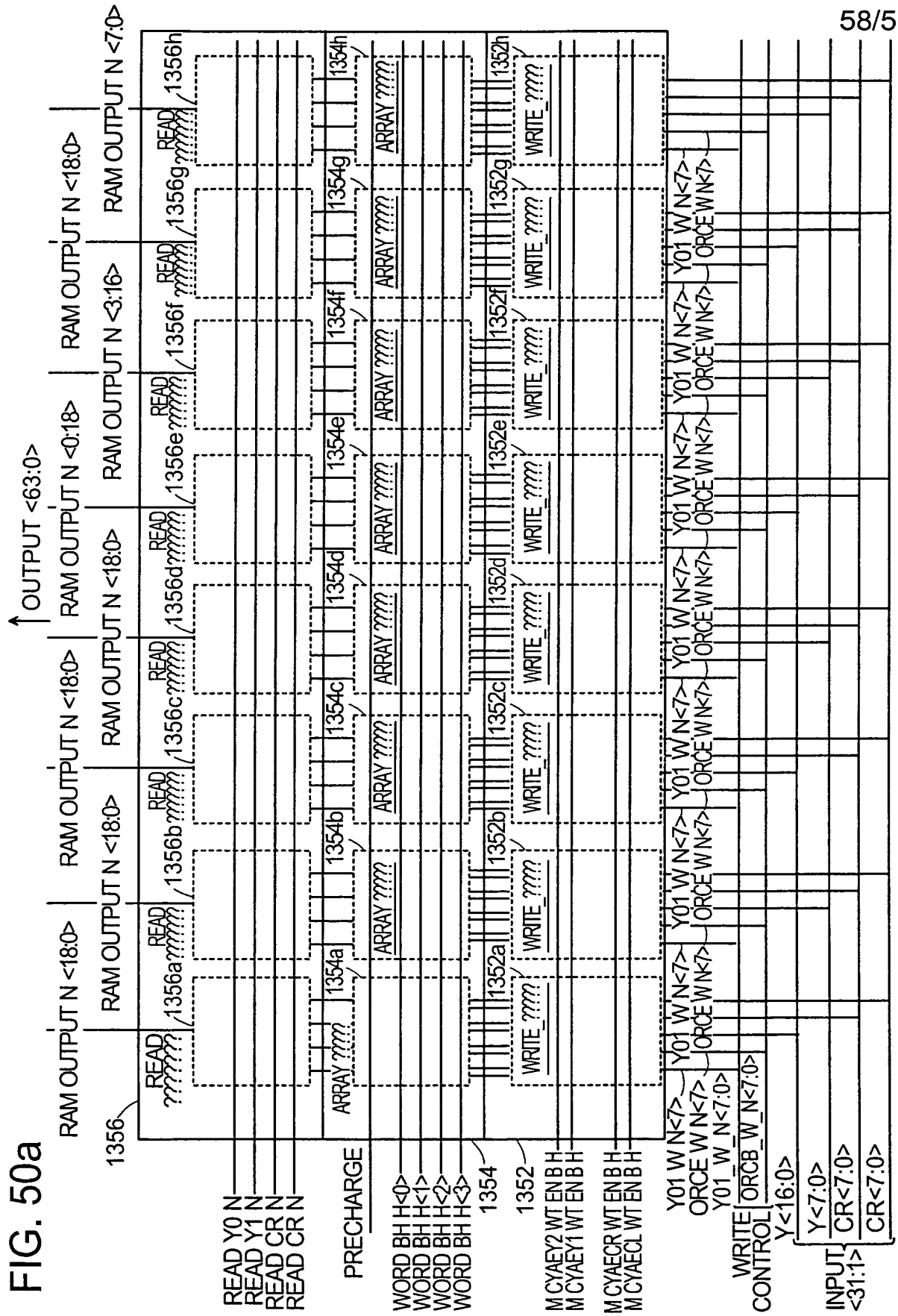




FIG. 50b